

Vol 4 No 10

October \$3*

The Australian **COMMODORE** and **AMIGA REVIEW**

Thinking Cap

*Games: Traxxion, Oink,
Zynaps, Slapfight, Enduro
and Firetrack*

*Programming: Sprite Clock,
Loan and Interest Calculator,
Machine Code Tutorial etc*

Amiga Review inside:

Professional Page
- great desktop publishing
B.E.S.T. Business Management
Hints & Tips - and lots more

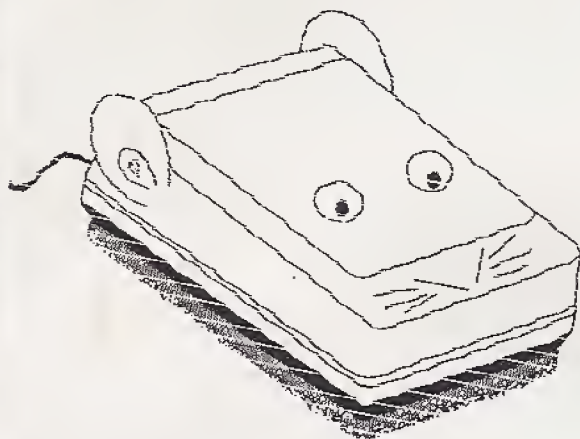
Printers - Buyers' Guide



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The Australian Commodore and Amiga Review

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Australian Commodore Review
Top Rear, 4 Carrington Road, Randwick,
NSW 2031 Phone: (02) 398 5111
Published by: Saturday Magazine Pty Ltd.
Editor: Andrew Farrell
Advertising: Ken Longshaw (02) 398 5111
Production: Brenda Powell
Layout: Amanda Selden
Subscriptions & back issues:
Tristan Mason (02) 398 5111
Distribution: NETWORK
Printed by: Ian Liddell Commercial Printing

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Editorial



BOTH COMMODORE Family Packs are selling well. The holiday season is still a few weeks away, and already consumers are proving that the Commodore 64 is their choice. The Pro-Pack, containing a 1541 disk drive, GEOS, and the Commodore 64C is moving big numbers. Bundled software is included inside the carry box, making this one top value for money.

Not everyone is out to upgrade to a bigger machine, or purchase for the first time. For most of us, peripherals are the ideal add-on. Printers, disk drives, modems and cartridge utilities. This month we take a look at the ins and outs of purchasing a printer. Commodore have

at long last a very solid range to choose from.

J. Mark Hunter, our masked man from the games test room, has reviewed an extra large swag of programs this month. He's promised to be less flippant and spill more facts about the game than usual. Next month there's a few even better smash hits from Imagineering and OziSoft.

For business minded users, Eric Holroyd takes a look at *Thinking Cap* and explains how to get into *Easy Script*. Strange as it may seem, years after *Easy Script's* release, it remains one of the most popular choices as a wordprocessor.

Don't forget Disk Magazine Eight is now out. Still double sided, and with plenty of new programs to play with. There's a full blown arcade game on our latest disk, along with two demo's from Compunet and a host of utilities.

Andrew Baines continues his article on machine code, and Paul Blair, will continue his Superbase column next month. (Won't you, Paul?) Until then, enjoy. □

Andrew Farrell

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Ram Rumblings

Water Polo

From Gremlin, a 3d simulation encompassing all the thrills and appeal of the classic game. Played to the rules of the association, the players have to swim pass and shoot the ball into that net.

The game takes place in a huge tub of water. Behind the frantic action lie the skills of a footballer, the physical endurance of an athlete and the tactical brain of a cricketer.

Play one on one, against the computer or for the Championship of water polo against four teams. Available soon from OziSoft.

Basil the Great Mouse Defective

Basil, Walt Disney's latest lovable character, is captured in this brand new adventure.

The player must rescue his good friend Dr. Dawson from the evil clutches of the dastardly Ratigan. Follow the clues which are strewn all over the buildings in Baker Street in order to achieve your objective.

Each of the three levels has five clues which will enable you to find the entrance to the next level. But can you distinguish between the real clues and the red herrings? Available soon.

Alternative World Games

Gremlin have captured the spirit of the Olympic Games in a comical new sports spoof - *Alternative World Games*.

Courteously guided through the menu by the resident parrot, up to eight players are each able to choose one of eighteen countries to represent.

As in all competitive sports, crowd support is very important, and in *Alternative World Games* it's very much in evidence.



Even the parrot provides enlightening squawks and screeches during the events. And the events...

Each game takes place at a different location. You'll be sack racing in Naples, boot throwing at the Colosseum, pole climbing in Verona and running up walls in Venice! After that, and if you can still stand the pace, try your hand at piling plates, jumping rivers, pogoing and pillow fighting. Available soon.

Tour de Force

A sports simulation that captures all the thrills and excitement of International Grand Prix cycling.

The action takes place in five stages. Can you master the different techniques required to sustain your journey through five different countries - each with a terrain and backdrop to match the location?

Your main objective in *Tour de Force* is to win each leg and then score the greatest number of points over the five legs. But if you don't defeat the champ you can't proceed into the next country.

If you don't get kicked off first, the assortment of potholes, broken bottles and bales of hay that litter the course won't speed you on your way either. Available soon from Gremlin.



Up-Date

MANY CUSTOMERS from all over Australia have asked us from time to time for up-dated information on new products, changes in prices etc. So we have decided to run this up-date column which will at least keep them informed of what we are doing and from time to time we may even slip some news in of our competitor's programs as well. We will also let you know of any rumours and information that we hear about specific programs.

This month I want to talk specifically about some new programs for the Commodore, and, in particular, *Mini Office II*. By the time you read this magazine, we will have released *Blitz Compiler* for the 64 and 128; *Swift Spreadsheet* for the 64 and for the 128; *Magpie Database* for the 64/128; *Test Cricket* for the 64 and for the 128; and a marvellous range of games called *Classic Quest* for the 64/128.

Now let's have a look at what you get with *Mini Office II*:

1. A Word Processor - 40 column display with 132 columns printout - insert, copy, move or delete blocks of text - 2 editing modes; insert or overwrite - on screen real time clock plus word count - transfer records from Data Base.

2. Data Base - 5 field types: Alpha, decimal, date, Integer, formula - all arithmetic functions - search and carry out powerful multi-field record sorting.

3. Spread Sheet - selection of criteria - recalculated automatically or manually - copy formulae either absolutely or relatively.

4. Graphics - pie char, bar chart or line graph - display up to 3 line graphs or bar charts simultaneously - 2D or 3D bar charts - dump graphs to printer.

5. Label Printer - any style, size, sheet format - direct from Data Base files.

6. General - more efficient use of memory and faster response time due to machine code content.

Due to the enormous number of sales already generated overseas and our confidence in quantity sales, we have decided to set the price at a very realistic price of \$44.95 for the C64 and \$54.95 for the C64 disk.

By the way, I would like to make a suggestion to many of you. When you go to buy a Joystick or Disk Box, instead of choosing any old product, why not specifically ask for a Pacronics Joystick which you will find is better shaped, better quality and backed up by better guarantees and service. □

T.T.F.N. Pacronics

LETTERS

TO THE EDITOR

Hi-Res colours?

I have been buying your magazine since early last year and have been very happy with it. Yours is one of the few Australian Commodore magazines that we really get our money's worth for. One of the reasons I bought my Commodore 64 was for the graphics. I had seen games and programs on friends' computers, but I have a question. In the Commodore Reference guide, it says that on the multi-colour hi-res screen, you can have only two colours per eight by eight block, but on many games programs, especially on title screens, it looks as if there are up to four colours in the same area. Is this possible, or is it simply my imagination.

Peter Skipwoth
Mount Evelyn, Victoria

Ed: Yes you can have 2 colours in each 8x8 block but that is in hi-res mode. In background multicolour mode you have your background colour, character colour and multicolour 1 and 2. Try reading the guide again!

Programming

I have been reading your magazine for just over a year now, and I would like to say how good it is.

Especially Adventurer's Realm, which I enjoy very much. The only thing I think is missing in this great magazine, is a section on programming. I would like to see a column where programmers, such as I, can send in programs to be published, or for the people who aren't as much "into" programming could send in ideas on a program.

Other than that, I think your magazine is great!

D. Younger
Richmond, N.S.W.

Ed: Send them in and we'll probably publish them!

SuperBase

Having struggled through Super Base without a good column like The Superbase Page, I was interested in your article on index codes in the August issue. I thought you might be interested in my approach:

```
90 ask"filename"f$.file f$
100 select 1
110 a=val ([keyname]) +1
120 a$=right$(str$(10000+a),4)
130 check"[keyname]".file f$
140 clear:[keyname]=a$:select a
150 k$=[keyname]:if k$<>a$ then
select k$:select d:goto 140
160 ask"continue or abort (c/a)
"z$:if z$="c" then 110
170 menu
```

Lines 90 and 130: I liked the use of CHECK, and f\$="filename" early in the program is a convenient way to ensure the correct file.

Line 100: Since the index code is automatically sorted by SB, the previous code must be the last record. Therefore select 1 may be used instead of DUMP and SET"index" (and also select a\$). This is now much quicker without the disk accessing.

Line 110: SB fields can be manipulated like strings, so thought I would clarify this aspect and save memory at the same time.

Line 120: Thanks for this neat way of incrementing the index code.

Line 140: This method gets around the time consuming STORE function. You have to be careful not to change the index code since the cursor sits on the key field with select a, and you might unintentionally overwrite the code. Line 150 provides a simple check to make sure this doesn't happen. If you want the cursor on a field other than the key and don't mind the wait, then store:select 1:select r is the way to go.

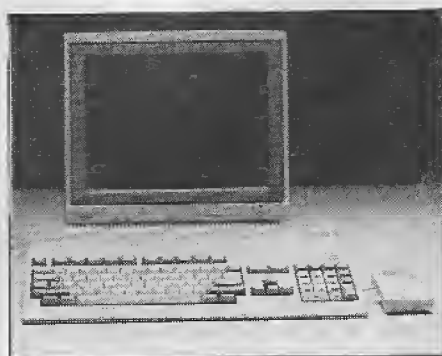
Line 150: Since you must select 1 (select a\$) after storing to get select r on the correct record, it seems you would need to select 1 before K\$=[keyname] to prevent a catastrophic deletion. However in practice it is not necessary although I can't see why.

Line 160: For the same reason, it is not necessary to select 1 before generating a new index code. Hence the loop to line 110 and not 100.

I am not sure if you can publish the following utility since it is based on information drawn from *Superbase The Book* by Dr. Bruce Hunt. It is a useful aid to establishing how many records can be placed on disk after creating a database.

Your column in the May 1987 issue advises of a problem with the 1571 drive and that at least 664 blocks should be left free to prevent data corruption. Accordingly, I have allowed for this in the program. I have also altered the 20% figure in the book to 15% because I think it more realistic. But the "hslst" file in sorting operations has to be considered. One such file I am using is 97k at the time of writing (592

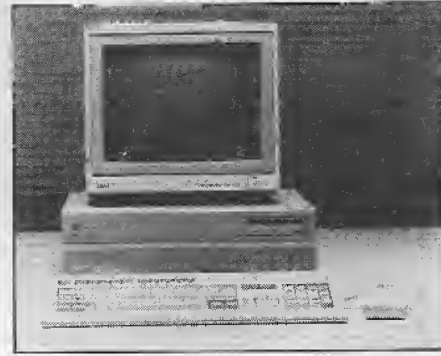
ANYONE WHO HAS JUST PURCHASED A CONVENTIONAL P.C. HAS MY SYMPATHY.



AMIGA 500		
REC. RETAIL PRICE	MEMORY	MULTITASKING
\$999 excluding monitor	512K internally expandable to 1Mb	yes
COLOUR	SOUND	IBM COMPATIBLE
4096 colours	1 independent stereo channels, built in music and voice synthesiser	no
SOFTWARE		
More than 500 commercially released programs available		



AMIGA 1000		
REC. RETAIL PRICE	MEMORY	MULTITASKING
\$2495 excluding monitor	512K internally expandable to 9 Mb	yes
COLOUR	SOUND	IBM COMPATIBLE
4096 colours	4 independent stereo channels, built in music and voice synthesiser	yes*
SOFTWARE		
More than 500 commercially released programs available		



AMIGA 2000		
REC. RETAIL PRICE*	MEMORY	MULTITASKING
\$2999 excluding monitor	1Mb internally expandable to 9 Mb	yes
COLOUR	SOUND	IBM COMPATIBLE
4096 colours video interface	4 independent stereo channels, built in music and voice synthesiser	yes*
SOFTWARE		
More than 500 commercially released programs available		

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AMIGA

ARE YOU KEEPING UP WITH THE COMMODORE AMIGA?

John Singleton Advertising COM0069

records).

```
1 rem program: "records.p" written
  by J.J. Marriner
2 rem purpose: To calculate the
  record capacity for one file.
3 rem date last change: 01 Sep 87
4:
10 ask "computer type (64 or 128)
  "ct:if ct=128then xb=664
20 file:maintains
30 ask "average length of key
  field"d:d=int(256/d*.65)
40 ask "length of combined
  fields"as
50 ask "total number of
  fields"nf:as=as+nf-1
60 a=int( (as*.75)/123+.5)/2
70 directory:ask "number free
  blocks "b:b=b-xb
80 c=int(b/a):display
  $147@1,2"Maximum Records:
  "str$(c)
90 e=int(c/d+.5)
100 nb=nb+e=int(e/d+.5):if e>1 then
  100
110 nb=nb+1:c=c-nb:a=int(c*.85/
  10+.5)*10
120 display @1,4"Allowable
  Records:"str$(a)
130 wait:menu
```

What a joy it was to call up SB from SS, load "records", put the SS data disc back in, open "listfile":list:close, switch back to SS, then load this letter and "records" as one document.

All over in seconds and without typo errors.

J.J. Marriner J.P.
Spring Hill, Queensland

Olding a newed program

In the interests of your readers, I feel I must draw your attention to the fact that the two methods for performing an OLD that were recently given in your magazine are both faulty. Both of these appeared in your Hacker's Hotline pages.

In your April 87 issue, the OLD routine is given as:-
POKE 2050,1 : SYS42291 : POKE
45,PEEK(34) : POKE 46,PEEK(35):
CLR

This does not work as the Basic

Interpreter itself uses location 34 during the POKE XX,PEEK (YY) routine. The value poked into 45 is therefore incorrect. This can be shown by entering the following in direct mode:-
POKE 34,255 : PRINT PEEK(34)
[return]

In your July 87 issue, the OLD routine was given as:-
POKE 2050,1 : SYS 42291 : POKE
46,PEEK(35) : POKE
45,PEEK(781)

This is better in one respect in that the value left in location 34 after the basic RELINK routine (SYS 42291) was put there by an STX, and after a SYS from basic, the last value held by the .X register is put into location 781 before the RTS is performed.

However, this version of OLD fails in that it does not include the CLR command. CLR, among other things, resets the pointers at 47/48 and 49/50 to the value held by 45/46, and thus must be used unless we directly poke the correct values to them. Without CLR or direct poking, 47/48 and 49/50 will hold 2051 after the SYS 42291.

Both versions of the OLD routine fail in that the address held by locations 34/35 after SYS 42291 is 2 less than that which should be held by locations 45/46, 47/48 and 49/50. This is because the RELINK routine uses locations 34/35 to hold the link addresses that are at the start of every basic line. When RELINK reaches the end of the basic program, this link address holds the first of the two zero bytes that mark the end of a basic program. The true address for 45/46 is the byte after these two zeros, ie two beyond the address held by 34/35.

If the program is OLDed by either of the two methods given in your Hacker's Hotline, any assignment of variable values, either in direct or program mode, may corrupt the end of the program and/or lock up the system.

The solution is to enter the following lines in direct mode after a NEW or a RESET. However, this

and any other OLD method will only work if there has been no attempt to enter basic program lines or to assign variable values after the NEW or RESET.

```
POKE2050,1:SYS42291:POKE46,
PEEK(35):POKE45,PEEK(781)
[return]
POKE46,PEEK(46)-
1*(PEEK(45)>253) [return]
POKE45,PEEK(45)+2+256*(PEEK(
45)>253):CLR [return]
```

The last two lines add 2 to the address that is put into 45/46 by the first line. They then reset 47/48 and 49/50 to the value held by 45/46 by virtue of the CLR.

The basic program will now be correctly restored and can be RUN or SAVED to tape or disk.

Frank Bunton
Wahroonga, NSW

Ed: A proper OLD program was published on Disk Magazine Number One!

Brave hackers

Any Hackers, Crackers, or anyone else in Canberra except the Shadowlord's that would like to end the shadowlord's reign over the Canberra hacking circuit please phone 549850 and ask for either Jamie Richmond or use my alias "Zaphod" anytime after 4 p.m. weekdays or anytime on the weekend. You should try to live in the Belconnen area (if you can't I don't really mind) and be over 12 and under 18 (subject to negotiation).

All you need is a C64, diskdrive, printer, disk monitor (fast Hack'em IV etc . . .), and a good knowledge of 'the who's who in the Canberra Hacking Circuit'.

A modem would go down nicely.

If you're interested then ring me or write to 66 Belconnen Way, Page, 2614 ACT (you can come in person if you really want to).

Jamie Richmond
Belconnen, ACT

OCP Advanced Art Studio

After reading your article on

OGP Advanced Art Studio I purchased it and there seems to be a major drawback with this program.

Trying to use it to its full advantage one needs to use a mouse. I have up to date tried five mice with no success.

The NEOS mouse that they recommend in the packaging does not work in any of the modes (I went out to buy one but tried it our first). I have rung every major computer shop interstate to try and purchase a Datex mouse which is also recommended, with no success at all.

Most stores haven't heard of a Datex mouse. I haven't even seen a Datex mouse for sale in England. Where can I get one?

You would expect software companies to think things out and work on what is available and popular at the time. I have been using a 1350

mouse on CADPAK 1278 and GEOS with excellent results. Using a joystick on *Advanced Art Studio* turns an excellent program into a dinosaur.

Beware folks! Unless you have a Datex mouse hidden away in your cupboard forget this one.

Peter Williamson
Kambah, ACT

Ed: *What about a touch pad — or koala tablet?*

Rehash?

I am writing regarding the letter in your August issue, which criticises your programming articles.

As far as I can see nearly every article on 64 programming is a "rehash of the contents of the Programmers Reference Manual" as stated by Mr. Boyes. Not such a

bad thing either considering that this manual though very informative, is often ambiguous and difficult to read.

The best way to learn to program a 64 is to arm yourself with reference books, magazine articles, program listings etc. and then put the pieces of the jigsaw puzzle together.

Articles such as those by Jason Briggs have provided me with many gems of information and often saved hours of hair pulling, page flipping and brain frying.

Good magazine, Keep it up!

Peter Boothman
Croydon Park, NSW

Ed: *Need I say more? Yes we intend to keep it up, so stay with us.*

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Printers

Buyers Guide

Having purchased computer, disk drive and software, a printer is the next logical addition. With it you can obtain that invaluable hard copy of your work. Letters, documents, mail-outs, graphics, charts and diagrams can be printed using day-to-day programs.

MORE SPECIALISED software in the personal publishing bracket enables you to produce letter-heads, posters, signs, postcards and banners.

On the Commodore 64 there are a variety of ways to connect a printer. Which method you choose will decide what level of compatibility is maintained. Certain ways and means, whilst cheaper, may offer less future potential or work with fewer software programs.

Most programs expect a standard Commodore type printer connected to the serial port. Once you have a disk drive, the printer will connect to the serial port on it.

However, a vast number of programs will also cater for non-Commodore type printers conforming to the Epson or similar standard. These may be connected via a special interface, or through a direct cable to the user port.

If you plan on sticking with computers for any length of time, and you can afford a Centronics printer, then that is normally the best way to go. Budgets that preclude such expenditure are best directed toward the second-hand market, or the

low end of Commodore's own printer range.

Commodore recently upgraded their printer range to include some very fine machines. These are actually rebadged versions of the OKI-Microline range. Be-

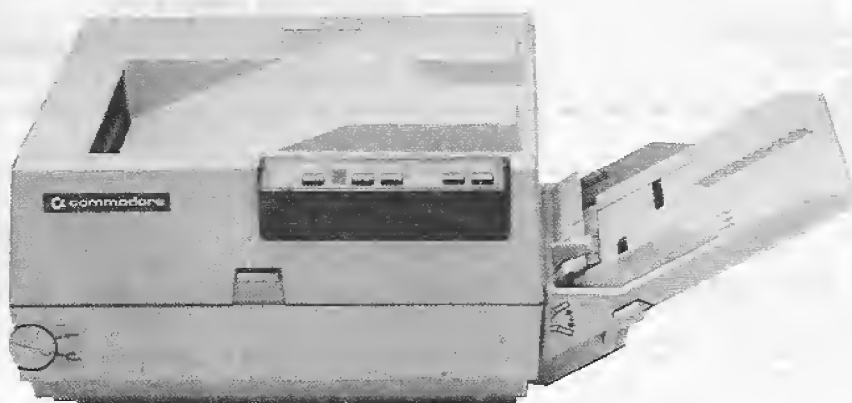
fore looking at the individual models available, let's take a brief look at a few general areas of printers.

Getting ink to paper

Most popular is the dot-matrix printer. Characters, or letters and numbers are formed by a series of dots placed close together. The result can vary from barely readable to virtually perfect letters.

Most users will be familiar with the quality produced by a daisy-wheel printer. Not unlike your average type-writer, this device produces each letter by stamping the required character against a carbon ribbon. An imprint is then made on the page that is well formed. Daisy-wheels, or golf-balls, may be interchanged to provide a variety of type-faces.

(Continued on page 10)



Commodore and Amiga Annuals 1988

In November we are producing the most valuable publication you could ever hope to add to your magazine collection.

In a special Annual edition, one each for the Commodore and Amiga Computers, we will be providing the most exhaustive guide to home computing in Australia.

Each issue will contain a comprehensive glossary of terminology divided into special subject categories.

Subjects such as communications, graphics, music, small business and entertainment will be given coverage.

For beginners there's tutorials, and for the expert articles on subjects you've only heard about - such as how to put sprites in the border.

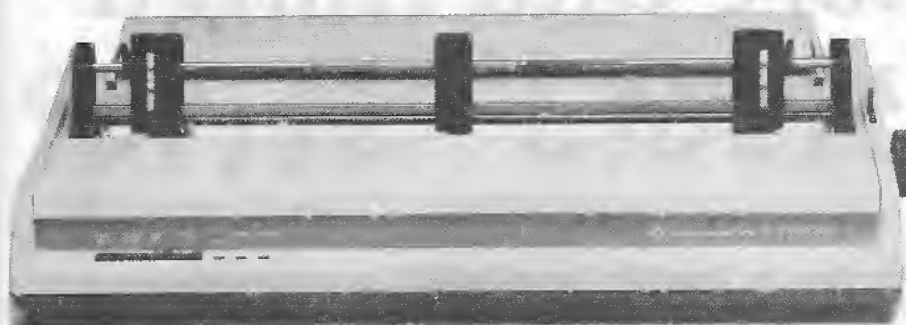
Listings of software packages as well as comparisons of leading brands will also appear.

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In practice this method produces what is referred to as letter-quality type writing. Some dot-matrix printers are able to come close to this quality by overlapping the dots, and doing a double pass over each letter. The resulting characters are called near-letter quality.

Various other forms of printing have come and gone over past years. These include thermal printing which burnt the letters onto special paper. The cost of paper was far too expensive, and it tended to deteriorate with age.

Ink-Jet printers are another alternative. These are very quiet, very fast but rather expensive. Ink is literally propelled onto the page, and each dot goes to form a letter in much the same way as a dot-matrix printer.

The latest development is the Laser Printer. These are based on the design of a photo-copier. They work by etching the design of each character or dot onto a drum which then prints the entire page in one fell swoop. Quality is excellent, especially with use of a page description language such as Post Script. This language enable each character to be perfectly drawn by the laser.

The result is close to typesetting quality. Thus many publishing houses use laser printing to save typesetting costs and speed up production time. This very publication was produced using an Apple Laser-Writer.

Which printer do I need?

For home use, a dot-matrix printer is the most flexible and least expensive choice. Because of the way in which each character is formed, a similar process may be used for creating graphics output. Daisy wheel printers are confined to the available type-faces. However, the quality of output is higher. Thus, they're more suited to the business environment.

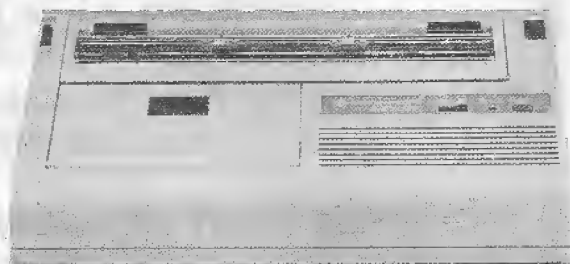
The process of printing graphics is often referred to as a high-resolution screen dump. In this operation each dot displayed on the screen in a bit-mapped display is printed on the printer correspondingly.

More expensive dot-matrix printers

work faster. The speed is normally expressed as characters per second. Around 80 CPS is average, with many brands now arriving with 120 CPS standard. In low-quality draft modes a few will even reach as high as 300 CPS.

Daisy-Wheel printers are inherently slow, due to the larger number of moving parts. They vary from 30 CPS to 90 CPS on ultra-expensive models.

Several printers available will handle colour. Since the Commodore 64 is a colour computer, this may seem a logical choice. However, in practice colour print-



ing tends to have little day to day use. It is possible to print onto special plastic suitable for overhead transparencies. Colour business reports also attract some buyers. For the hobbyist, a few smaller models will produce excellent reproductions of screen pictures. However, day to day use of these units is limited.

So what are the choices?

Commodore offer six different models, all suited to various computers in their product range. Please refer to specifications charts listed. □

PRINTER COMPATIBILITY CHART

CPU TYPE	MPS 1250	DPS 1101	MCS-810	MCS 820	MPS 1280	MPS 2020	LP 806
64	YES	YES	YES	NO	NO	NO	NO
128	YES	YES	YES	NO	NO	NO	NO
128D	YES	YES	YES	NO	NO	NO	NO
Amiga 500	YES	NO	NO	YES	YES	YES	YES
Amiga 1000	YES	NO	NO	YES	YES	YES	YES
Amiga 2000	YES	NO	NO	YES	YES	YES	YES
PC 5	YES	NO	NO	YES	YES	YES	YES
PC 10	YES	NO	NO	YES	YES	YES	YES
PC 20	YES	NO	NO	YES	YES	YES	YES
PC 40	YES	NO	NO	YES	YES	YES	YES

N.B. Parallel connecting cables are not supplied with printers but are available as options.

Commodore MPS 1250 Printer

GENERAL DESCRIPTION

The MPS 1250 is a high performance NLQ (Near Letter Quality) dot matrix printer for Commodore owners seeking to produce top quality documents. With its variety of print styles the MPS 1250 enables your output to clearly stand out. Create and print your own symbols or characters with its user-definable characters. It can even handle high resolution graphics for charts, diagrams and illustrations.

SPECIFICATIONS

Printing System

- Bi-directional impact dot matrix
- 9-Pin print head

Printing Speed

- Draft quality: 120 CPS
- Near Letter Quality: 24 CPS

Character Matrix

- Standard: 9 x 9 dot matrix
- NLQ: 17 x 17
- Doublestrike: 9 x 9
- Emphasized: 9 x 10
- Expanded: 9 x 19
- Graphic Characters & symbols 8 x 9

Print Types and Styles

- Pica, Elite, Compressed, Expanded, Italics, Double Strike, Emphasized, Superscript & Subscript, Reverse, Proportional

Character Spacing

- 5, 6, 8.5, 10, 12, 17 or 20 CPI

Line Spacing

- Standard: 1/6, 1/8 or 7/72 inch Programmable

Paper Type and Feed

- Friction Feed: Single sheet up to 25.4cm wide
- Tractor Feed: 7.7cm to 25.4cm wide
- Paper Thickness not to exceed 0.03cm
- Tractor feed assembly included

Interface

- Dual Commodore Serial Bus and Parallel ports

Dimensions

- Height: 90mm
- Width: 402mm
- Depth: 255mm

Weight

- Approximately 3.7kgs

Power

- 240Volts at 50Hz at 0.4A

Optional and Replacement Items

250022 Replacement Ribbon
601102 Replacement serial cable
250030 Optional Amiga 1000 parallel cable
250031 Optional Amiga 500, 2000 and PC range parallel cable

Commodore DPS 1101 Printer

GENERAL DESCRIPTION

The DPS 1101 is a high quality daisy wheel printer designed for the professional. For use with the Commodore 64 & 128 range of computers the DPS 1101 allows you to obtain the output quality that is generally associated with documents from accountants and solicitors.

The DPS 1101 printer gives the highest quality text output available to 64 and 128 users.

SPECIFICATIONS

Printing System

- Bi-directional, friction feed daisy wheel

Printing Speed

- 17 CPS (Shannon text @ 10 CPI)

Print Wheel

- 100 characters per wheel
- TA compatible

Print Wheel Life

- 10 Million characters per wheel

Number of Characters/Line

- 110 Characters (10 pitch)
- 132 Characters (12 pitch)
- 165 Characters (15 pitch)
- 82 to 220 characters (Proportional Spacing)

Maximum Paper Width

- 33cm (Printable width 28cm)

Carriage Motion

- Bi-directional, incremental motion

Minimum Spacing Speed

- Max 1000 ms

Paper Feed

- Bi-directional, Friction Feed

Minimum Feed

- 1/48 inch

Cartridge Ribbon Type

- IBM 82 Typewriter ribbon
- Single Strike ribbon
- Multi Strike ribbon

Interface

- Commodore Serial Bus

Dimensions

- Height: 173mm
- Width: 607mm

Depth: 343mm

- Weight
- Approximately 13kgs

Power

- 240V at 50Hz at 50W max

Optional and Replacement Items

250017 Replacement Ribbon
601102 Replacement serial cable

Commodore MCS 810 MCS 820 Printers

GENERAL DESCRIPTION

The MCS 810 and MCS 820 are the first really affordable colour and B & W printers designed for the entire range of Commodore personal computers. The 24-element print-head allows up to 100 different colour shades with exceptional definition and clarity. You can print brilliant graphics, charts original illustrations - even acetate transparencies for overheads.

SPECIFICATIONS

Printing System

- Unidirectional ribbon transfer dot matrix

Printing Speed

- Draft quality: 80CPS
- Near Letter Quality: 40CPS
- Graphics: 12 lines/minute

Character Matrix

- Draft: 7 x 18
- NLQ: 14 x 18
- Super/Subscript: 7 x 9
- Underling and Italics: 18 x 18

Print Types and Styles

- Superscript & Subscript, Underlining, Italics

Character Spacing

- 5, 6, 8.5, 10, 12, or 17CPI

Line Spacing

- 6 lines per inch
- 8 lines per inch

Graphics

- High resolution All: 60 x 72 DPI
- Points Addressable: 72 x 72 DPI
- Graphics: 120 x 144 DPI or 144 x 144 DPI

Paper Type and Feed

- Variable width tractor or friction feed from 127mm to 254mm
- Plain or thermal paper
- Acetate transparencies

Interface

- MCS 810: Commodore 64 serial
- MCS 820: Amiga & PC Parallel

Dimensions

- Height: 60mm
- Width: 330mm
- Depth: 190mm

Weight

- Approximately 2.8kgs

Power

- 240V at 50Hz at 40W max

Optional and Replacement Items

280001 Replacement Black Ribbon
280002 Replacement Colour Ribbon
280003 Replacement Paper Rolls
270830 Optional Paper Stand
601102 Optional serial cable for 810
250030 Optional A1000 parallel cable for 820
250031 Optional A500/2000 & PC parallel cable for 820

Loan Interest and Repayment Calculator

CONSIDERING TAKING out a loan? Well this handy little program will work out how long it will take you to pay off and how much interest you will have paid. If you have a printer it will even print out a small table containing these results.

To start with the program will ask you how much money you have borrowed, or if you like how much you plan to borrow. Enter an amount without using a dollar sign and press return. Next the interest rate will be asked for. Enter the current interest rate for the loan you have taken out, or wish to take out, without using a % symbol and again press return. Finally

you will be asked what monthly payment you will be making, or plan to be making. Enter an amount without using a dollar sign and press return again. Now you've done your job the computer will do its.

In a few seconds a loan report will appear on the screen. It will display all of the information you entered and also the length of time the loan will take to pay off, the total amount you will have paid and also the total interest. If you would like a printout of this screen prepare your printer and press return, otherwise press space and have another go.

If you entered ridiculous amounts of

money at the start you may not get a table of results because the loan may not ever be paid off. For example, if \$100,000 was borrowed at an interest rate of 16% and \$500 was paid every month the loan would never be totally paid off, so you could leave your computer sitting there for 10 years (assuming there were no power failures) trying to work it out and it would never get a result.

*This program calculates interest on a monthly basis and rounds off the time taken to pay off the loan to the nearest month.

(continued on page 38)

NEW — Australian Commodore Review Disk Magazine No 8!

Utilities

Track and Sector — modify disks, find secret words, and modify programs directly using this brilliant utility. Every true hacker needs one.

Function Keys — how would you like 128 function keys on your Commodore 64. This program does it all.

Unscratched — did you actually erase a file lately? If so you need this nifty utility to bring it back.

Relocatable directory — if you need to see what's on a disk without losing your basic program use this little beauty. Specially written to sit anywhere in memory.

Tape Rename — if you need to rename a tape program without the hassle of loading and saving it, this is the answer. See article in this issue.

Games

A super special for issue 8. A complete machine language arcade type game. Excellent graphics and sound.

Home/Business

Calendars — need to find out a special date in the past and the future? This program will calculate the exact date and day.

Chequewriter — for a professional finish to your cheques why not print them out.

Screen clock — if you need to keep track of the time whilst you're programming this program displays the date and time at the top of the screen. Remains running even as you type.

Graphics

ESCOS version 2.99 — produce your own full screen pictures made by joining 112 separate sprites. A programming marvel!

Newsroom Camera

Clear Screen

Demos

Enterprise II

Eddie Murphy

Future Writer — Send musical letters to your friends using the program the experts use.

This is the one that programmers use to pass on special messages to each other.

Includes various character sets and a selection of music.



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NetComm believes Commodore owners have waited long enough.



It seems Commodore owners are a patient lot. While other PC users were discovering the delights of communications, you had to wait for someone to design a modem just for you. And while the others were enjoying the convenience of auto dial and auto answer, you were left waiting again.

But now, with the introduction of NetComm's Modem 64/128 for Commodore, your wait is over.

The Modem 64/128 is a full-feature, two-speed auto modem compatible with all existing commercial and public domain software, including Commodore 1650 software.

It operates at 300/300, 1200/75 and 75/1200 baud.

It comes complete with Videotex and Terminal software and even a VIATEL subscription form.

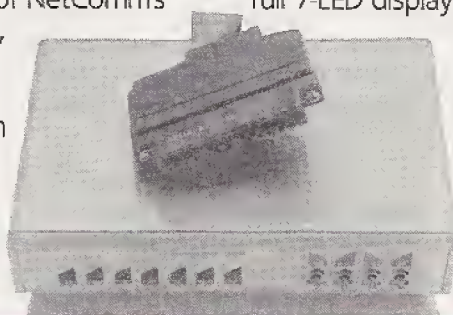
It provides auto dial, auto answer and auto disconnect features you'd only expect to find on much more expensive modems.

All modem features are software controlled, with a full 7-LED display reporting all operational modes.

And it comes complete, with Telecom approval, ready to plug in and run.

All this, plus NetComm's legendary reliability, for less than \$300, excluding tax.

So now, what are you waiting for?



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NE41 FPC

The Long Arm Computer User Group

Once upon a time, there existed in this land a group of big, dumb, poorly educated but basically dangerous people called Police Officers. They were a constant source of harassment to genuine people trying to make a meagre living ripping people off.

LIKE THE dodo, this group of people disappeared from the face of the earth partly because of today's advanced technology, but mostly because the crims were using it. The present system of police education is such that they are one step ahead of criminals and police are becoming more aware of the importance of a good education to their role in society.

It was a natural step, then, for police officers to purchase home computers to further their careers and educate their kids (Yes folks, they ARE human). It was also inevitable that they should band together to help each other learn more about their computers and the software available for them. As with all computer users they found that after buying their computers, they had no money left for software or for the necessary peripherals they found they needed after learning a bit more about them.

The officers naturally steered away from normal user groups because of the grey area of software piracy. Let's face it, anyone can copy software and get away with it, but if the police do it, it immediately becomes a crime and earns the undivided and immediate attention of the media. They decided to start their own user groups exclusively for police officers and the result was phenomenal.

In South Australia, Senior Constable Dave Russell and First Class Constable Tracy Chadwick formed the South Australia Police User Group. From November 1986 to March this year, the group was run on a very informal basis until they had their first general meeting and decided on a more formal constitution. The club

boasts about 30 members to date and is doing very well. The members owned Commodore 64s at the outset, but quite a few have updated to Amigas, thanks to the ability of the committee to ferret out cheaper prices.

At the same time in Queensland, Sergeant Second Class Mal Whitney was banding together the Sunshine State's finest and on 11 November 1986, the first general meeting of the Long Arm Computer User Group took place. The original name of Queensland Police Computer Club had to be abandoned because it was felt that it would be confused with the computer branch, so the Long Arm name was adopted.

"They decided to start their own user groups exclusively for police officers and the result was phenomenal."

The club was formally conducted from the outset and is now incorporated as it is basically a commercial venture. It was decided that all sales made by the group include a profit to be channelled back into the group's treasury. This way there are no annual fees struck, only a joining fee, and the club's assets increase so that hardware and software can be bought for the use of members.

Both groups started their libraries by pooling together their privately owned software and donating it to the club. Because they are state wide concerns, backups could then be made for the use of country members on a mail order basis

to comply with Commonwealth copyright laws. The book libraries were started in the same way and now have piles of books and magazines for the members' use. The South Australian group recently bought a full Commodore 64 system and the Queensland group have purchased a disk drive for the library's use and a printer for the Newsletter Editor.

Each group had to have the consent of their respective Police Commissioners to be recognised as representatives of the police force and neither officer has regretted the decision. The officers involved are becoming more adept at using the police computer system and are teaching others to become more computer literate. The innovations they are developing for departmental use are also appreciated by their bosses.

The most important result of this exercise is that computer owners are able to exist on a cheaper basis without ripping off the dealers, who are very important to the survival of micro computers. They are saving money and the dealers are making it, which is as it should be. It is easier to purchase software in a group as the whole group has the benefit of the program and its operating manual at an affordable price and the dealers are still receiving payment for their merchandise.

The police are setting other users an example by their enterprise and honesty and it is to be hoped that others will follow and help maintain the high standard of computer software and hardware and ensure its continuing supply. □

Thinking Cap

by Eric Holroyd

Thinking Cap is described as an outline processor, and what it does is allow you to use the C-64 as a hi-tech notepad on which you type your ideas as they come to mind, organise them into Headings, Topics and Sub-topics, then print out the whole thing in a very pleasing manner.

IF YOU have to write a sales presentation (did he use our computer? No, he brought in his own! Oh, what kind is it? It's a Commodore 64!) for the next sales meeting you can do it easily and quickly

with this excellent piece of software from Broderbund. It's up to their usual high standard and those of you who own *Print Shop/Companion*, *Toy Shop*, *Karateka*, *Music Shop* etc already know the quality of Broderbund's software.

Brainstorming

First of all you select "Start" from the menu and enter the title of your piece. The word "Brainstorm" will appear in the top right hand corner of the screen and you'll get an input prompt to mark where you begin. Simply type in a line (or lines) of text about your first idea. *Thinking Cap* automatically starts a new line when your typing reaches the right-most screen position. Pressing the Return key ends that idea entry and puts up a new input prompt with a new

line number. You're ready now to proceed with your next idea.

When Brainstorming I found it best to enter all the major topics first, then go back and put in the sub-topics, then the sub-sub-topics. Up to seven levels of depth are allowed so you can really refine

your ideas.

If you check out the outline I did of this magazine you'll see that I had three main topic headings, Content, Overview and Distribution. The sub-topics in Contents are then listed by letter with the first line of each (known as the "headline") in bold print. Following this is the sub-sub-topic which is listed by number and at the same time it's indented for easy eye-recognition, great if you have to give a speech or talk and are constantly looking up at your audience and back to your notes.

The Outline of this magazine was easy and quick to do and if I'd been writing a resume for a job application I'd have followed the same pattern. If you're a short story writer, or even write full length novels, this could be a very handy tool with which to develop your plot and characters.

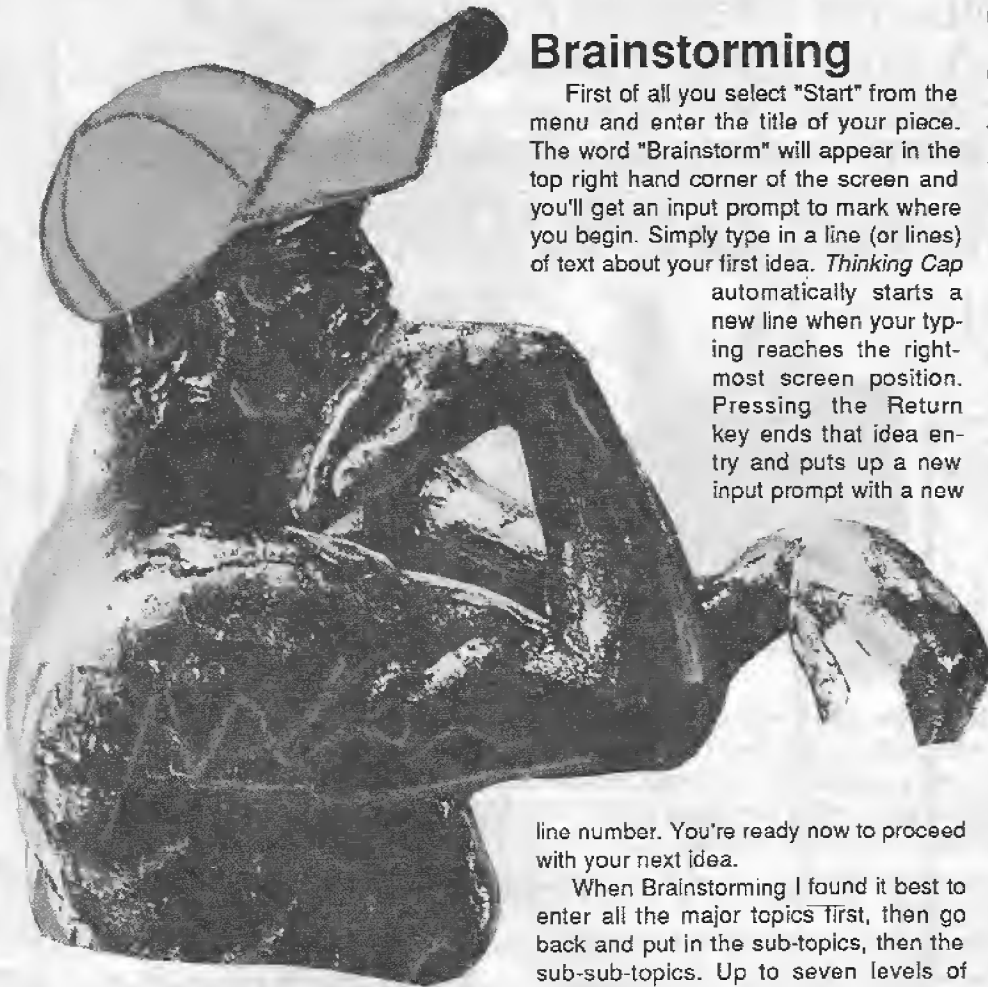
I can see many uses for *Thinking Cap*: planning a holiday (get traveller's cheques, board the canary, cancel the papers etc), Technical Projects, Job Applications, Personal History, Family Tree notes, Speech Writing, Stock Ordering etc etc, and no doubt there'll be many more uses, dependent on individual requirements.

Thinking Cap is great because if you have a butterfly type of mind like me you can dart from one topic to another entering sub-topics as fast as you think of them. As your outline grows on the screen you're provoked to think more about each item, and before you know it you've got all your thoughts nicely organised.

This professional-style program lets you customize the master disk with your printer type and screen colour preferences, and I'd have come unstuck here if I hadn't made a backup with my nibble copier.

I put the backup on the back of the program disk after cutting a suitable

(continued on page 17)



IMPORTANT ANNOUNCEMENT

Pactronics are happy and proud to announce that they have been appointed official Australian Distributors for some absolutely marvellous products including **MINI OFFICE II** for the **Commodore**. Indubitably, the **best** value and **best** selling and most comprehensive integrated suite of programs:
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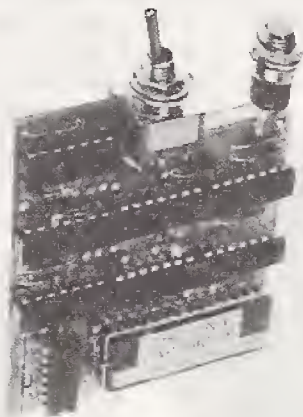


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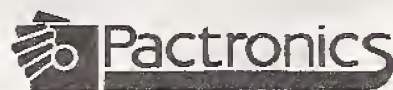
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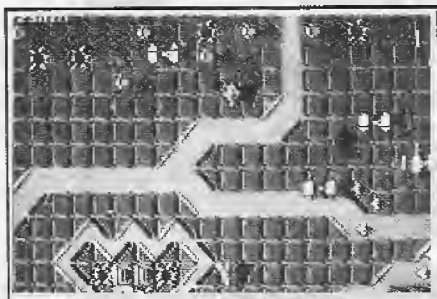


FIRETRACK

by J. Mark Hunter

GET YOUR passports and calendars ready again, because we're heading back up to the future once again and we're talking possible eardrum damage.

But not that far away, babes, just the 22nd century, where people step out in



furs like they do here in the 20th, and they still eat at assorted fast food burger bars ... except of course in both cases the material is still alive.

The 22nd century is going to be a pretty wild place. I know I'm going to enjoy it . . . and yes, I do plan on being around, at that time, and so does *Australian Commodore Review*. Yeah, I'll still be here, Andrew might be here too.

Yes, it's fun to imagine about the future, anything past February 1989 gets blurry, sure, but what I'm talking about is yonks away, like another two hundred years. What will we be drinking? What will we be learning in schools? And what and how will we be driving? and where?

Electric Dreams Software sketches in a little detail, something called a Firetrack. Let me explain.

At the start of the 22nd century the Pirate Industrials funded and built the Asteroid Belt colonies.

The Pirate Industrials split the earth scene and caused a big shake-down among the investors and people that use "Belt" as an address. Negotiations col-

lapse and a phase skirmish known as the "Pirate Wars" began.

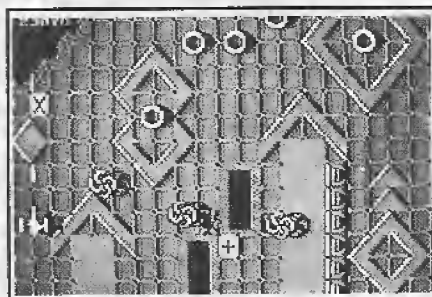
First, Earth attacks on the colonies' central trading route. They call this the Firetrack. Spanning eight mining worlds, separated by Comm Spaces - areas of spaces filled with discarded communication hardware - space junk.

In principle, each world is based on one of our designs - "Baseworld", "Dustworld", "Iceworld" and "Mallworld" although there is some variation within each of these design types.

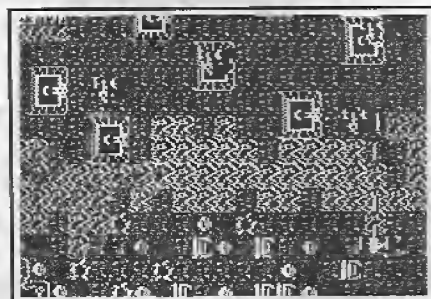
Worlds are individually driven by nuclear power plants, disguised as "eyes" at the end of each colony. Destroying these plants throws the settlement into darkness: you must then reattack in the blackout to prevent the machine-building mechanisms reconstructing everything.

Variable defence levels have been observed throughout the worlds - including two instances of total abandonment - you need only fly over the abandoned worlds once to wipe them out.

Let's not get too mediocre about the Top Gun training here, friends, this mission according to military reports indicate a "White Light" opening out somewhere within the Firetrack. White Light is some okay stuff. It is vital that you find it before the pirate harnesses its astronomical power - it could be developed into a colossally dangerous weapon.



Inside the game you become one of the few security-cleared ex-military personnel open for Firetrack pilot selection. Impressed, aren't you? With your so-called experience - and a specially modified hatchfighter - I believe, and they be-



lieve that you can find the White Light. Now you've got to believe it yourself. Is it coming through? Good.

You start each mission with a team of Hatch fighters. Fly across the colonies knocking out the power nodes.

Each Earth Council will allot you an extra team member if you can destroy 10 of these. Escape from CommSpace and they will award you an extra fighter. If you only have one team member remaining, they will restore your team size to three.

Of the eight worlds in *Firetrack*, it is possible to access the first three directly. The remaining worlds can only be reached by escaping from Shail . . . Oh-oh, who the heck is Shail? I think it's trouble. And once a section is mastered (that is, you finish with at least three team members intact) your computer skips to just beyond there on the next mission, retaining your team and all your credits, unless you enter the Firetrack at one of the early worlds by pressing the relevant keys as indicated on the options chart.

Micro Accessories of S.A.

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- **Two Fastloads...**
A normal disk turbo at 5-7 times normal PLUS the

astonishing Lazer at 20+ times normal... BUILT IN.

- **Selectload...**
Just use cursors to scroll to the program you want to load and press a function key.
- **Reset...**
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- **Tape Turbo...**
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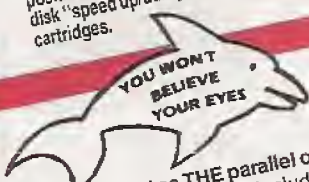
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(These figures do not allow for searching)

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Australian Commodore Review

1 Content

1.1 Articles and features of interest to owners of Commodore computers such as C-64, C-128 and Amiga

- 1.1.1 Superbase column by Paul Blair
- 1.1.2 Multicolored User Defined Graphics by Jason Briggs
- 1.1.3 Convert C-64 Fast Load cartridge to C-128 by Joe Fixit
- 1.1.4 Machine Code Tutorial by Andrew Baines
- 1.1.5 Dice Roller by Andrew Baines
- 1.1.6 Basic is easy by Andrew Farrell
- 1.1.7 Freeze Machine reviewed
- 1.1.8 Disk Drives discussed by Andrew Farrell
- 1.1.9 Road Runner and Xevious reviewed by J. Mark Hunter
- 1.1.10 All this and more in the August '87 issue!
- 1.2 Product reviews by independent writers
 - 1.2.1 Covers games, productivity software, art & music programs, and anything of interest to Commodore owners
- 1.3 Up-to-date industry news and gossip
 - 1.3.1 What are Commodore up to this week?

2 Overview

- 2.1 Published by Saturday Magazine
- 2.2 Associated magazines : GEM (games, entertainment, music) and Australian Apple Review
- 2.3 Very reasonably priced
- 2.4 Now incorporating Amiga Today
 - 2.4.1 August '87 issue includes:
 - 2.4.2 Amiga Hard Drive alternatives by A. Farrell
 - 2.4.3 Phasar reviewed by Ian Preston
 - 2.4.4 Telecomputing by Tim Strachan
 - 2.4.5 2meg RAM expansion from Proton Microelectronics reviewed
 - 2.4.6 How to use the Fish Disks
 - 2.4.7 Barbarian & Starglider reviewed by Adam Rigby
 - 2.4.8 Plus several other articles of interest to Amiga owners
- 2.5 Also publishes the Australian Commodore Review Disk Magazine
 - 2.5.1 Seven issues already published
 - 2.5.2 All previous issues available
 - 2.5.3 Full of games, utilities, Demo programs and general interest to C-64 and C-128 owners
 - 2.5.4 \$12 each plus \$1 Shipping

3 Distribution

- 3.1 Australia-wide
- 3.2 By subscription or from newsagents
 - 3.2.1 Contact the publishers at the address on page 3 for details of how to subscribe

Copy parts of your outline they're automatically put in the Section Safe until you want to Paste them somewhere. There's a similar thing for storing a block of text from a single topic or subtopic, it's called (what else?) the Text Safe. Both Safes work in much the same way but they're entirely independent.

Printing out

The printout section deserves a special mention as you have many choices of presentation here.

Several variations on the Main Title of

your outline are available: First page only/All pages, Full Heading/Short Heading, Centered?, etc. You specify the printout style: Roman, Technical or Prose. The first is normal font with numbered lines and indentations for topics and further indentations for subtopics. "Technical" numbers your subtopics 1.1.1, 1.1.2, 1.1.3, etc, whilst "Prose" sets it all out formally with no line numbers of indents.

Type styles include: Bold, Wide, Underline, Bold + Underline, Wide + Bold, Wide + Underline, Maximum (Wide + Bold + Underline) or No Emphasis. The selec-

tion for this is simplicity itself. Simply put the highlighter on the appropriate menu item and use the + and - keys to change the print type. Easy!

Many other page formatters are supported including Title Gap, Line Spacing, Left and Right Margins, Page Numbering, Page Length, Text Length as well as the choice of continuous paper or single sheet feed.

The printer setup section contains drivers for Commodore, Epson and "Custom" printers and the nicely written manual explains what to do if your printer won't work with one of the first two drivers. My Star Gemini 10x with Xetec Super Graphics Senior Interface worked OK with the Epson driver and I had no trouble at all.

Conclusion

All in all this is a very useful program. It's very user-friendly and having those menus and windows makes it very easy to use. If you need to organise your thoughts and/or ideas onto paper as I mentioned above then *Thinking Cap* is just what you need. You can give a speech, talk or presentation straight off the printout or use your favourite word

processor to further expand on the material (finally write that novel?) you put together whilst you had your *Thinking Cap* on. □

Machine: Commodore 64
Publisher: Broderbund Software
Distributed by: Imagineering on
(02) 697 8566

Using Easyscript

by Eric Holroyd

THIS IS still my all-time favourite word processor despite all the more recent offerings like *Superscript* for both C-64 and C-128, *Fontmaster II* for C-64 along with *Textcraft*, *Scribble II*, *Word Perfect* etc. for Amiga now being readily available. This is the one I started off with, it's the one I learned more or less properly and I still find it the easiest to work with if I need to write something quickly and easily.

I bought it for \$130 bundled with *Easy Mail* (quite the worst mailing and label program I've ever seen!) about two and a half years ago when I bought the Gemini 10x printer and it baffled me for a long time until I slowly began to understand some of the features. It struck me that there must be other people like myself who, never having had much to do with computers, are somewhat overcome with all the technicalities encountered in programs such as *Easy Script*. Here's how I finally came to grips with it...

Customising

First of all I customised the program to suit my needs. I used the Isepic copier cartridge to make a quick-loading version that didn't bang the heads around on the drive whenever I loaded it. (Making a copy from an original program that you've bought is apparently acceptable in law as you're allowed to make an "archival copy" in case your original crashes).

To capture it with Isepic I first loaded the program in up to the title screen where you need to make the various choices. First choice is for Text Width and you're prompted to choose from 40 to 240 columns. I chose 80 to suit the standard printout on normal paper, then went to (D)isk or (T)ape where I chose (D) as I'm working from a disk drive.

The final choice was the most difficult as I hadn't a clue what the manual was talking about and didn't understand the

choices offered. I experimented and found that by choosing "0" for CBM printers I could get *Easy Script* to work on my equipment of: C-64 with 1541 drive and Star Gemini 10x printer with Xetec Super Graphics Senior Interface.

If your equipment is different to this then my suggestions may not work for you, but at least they'll give you a clue as to what some other dummy did when trying to make sense of a decidedly user unfriendly manual.

Having done all that I progressed to the actual working screen and set my choice of screen colours. This is done by holding down the CTRL key and pressing 1 to change the cursor colour, 2 for the screen colour and 3 for the border colour.

Set-up file

Once I'd got that organised I set up a file called (appropriately enough) "setup". The first thing to learn with *Easy Script* is that the F3 key puts a reversed asterisk

on the screen as a marker for a "comment" or "instruction" to the program. Anything following this will appear on screen but will not print out. Using F3 then, here's what my setup file looks like:-

```
*nb"setup" (return)
*0=0:1=1:2=2:3=3:4=4:5=45:6=66:7=64
(return)
*lm5:rm75:pl66:tl63:ju1 (return)
```

(don't forget that pressing the return key will erase anything to the right of the cursor in *Easy Script* and some other word processors).

The first line is the name of the file for identification and saving. The second line sets up codes for "embedded commands". The third line shows layout settings of:

Left Margin at column 5 and Right Margin at column 75. Page Length is 66 lines and Text Length is 63 lines. The ju1 simply means that the right hand side of the text will be "justified" or aligned vertically with no

ragged edges.

Back to the second line with the "embedded commands" now. These numbers are used in conjunction with the "Escape" command which is entered by pressing the F1 key then the Up Arrow key (next to the Restore key). This will put a reversed capital E on the screen to signify Escape.

This is fol-



lowed by whatever combination of codes you need to achieve the printing effect that you want.

Underlining

For instance, underlining was a source of bewilderment to me until, after countless phone calls to Commodore's software support department, light began to appear at the far end of the tunnel.

Thanks to Gary Mason at Commodore I learned that, to underline on the 10x all I have to do is send the command Escape, CHR\$(45),CHR\$(1) to turn on underlining and Escape, CHR\$(45), CHR\$(0) to turn it off again. Incidentally, Escape is CHR\$(27) so you might also see the above commands written as 27/45/1 and 27/45/0. Now, to send them using my set-up file all I have to do is press the following key sequence:

F1/Up Arrow/F1/5/F1/1

and everything that follows will be underlined. Try it for yourself and see. Then enter F1/Up Arrow/F1/5/F1/0 to stop underlining. In simple terms, if you're typing a letter and want a sentence underlined just type the first sequence before the sentence you wish to underline then type the second sequence after you've typed the sentence. Easy.

Fonts

Using the Xetec Interface I can print in NLQ (Near Letter Quality) by pressing F1/Up Arrow/F1/1 and from then the interface's NLQ font will be used until I type F1/Up Arrow/F1/0. From now on in this article Escape will be taken to mean F1/Up Arrow.

The Xetec Interface is capable of storing two selectable fonts for use in your letters and documents, and having followed the instructions to store the fonts you call them up with the embedded commands Escape/F1/2 for the first selected font and Escape/F1/2 for the second selected font. In both cases Escape/F1/0 will turn the features off.

Escape/F1/4 returns you to the normal Dot Matrix print or Draft Mode that your printer normally uses and if you wish

to reset the printer to its normal start-up settings and cancel every command you've sent in your document you simply enter Escape/F1/7. If you check the second comment line above you'll see that 7=64. So what we've actually sent to the printer as a reset command is ... what? Figure it out for yourself and I'll come back to that point in a minute when you've had a chance to think about it. Don't worry, all of this took months to penetrate my skull, as I'm no Einstein.

Here's a couple of commands re print size:

Escape/F1/6/F1/1 turns on Pica pitch printing.

Escape/F1/6/F1/0 turns it off.

Escape/F1/6/F1/2 turns on Elite pitch printing.

Escape/F1/6/F1/0 turns it off.

Other printing commands that can be embedded within the text (ie displayed on screen but not printed on paper) are also sent in combination with the Escape code of F1/Up Arrow but the codes following Escape are not reversed, in other words you don't press F1 before entering them. Here's how:

Escape/E turns on Emphasized print.

Escape/F turns it off again.

Escape/G turns on Double Strike print.

Escape/H turns it off.

Escape/E/Escape/G turns on Emphasized/Double Strike.

Escape/F/Escape/H is off

Escape/4 turns on Italic printing.

Escape/5 turns it off.

Escape/F1/Shifted [turns on Double Width print

Escape/F1/Shifted] turns off Double Width print.

Escape/F1/Shifted (turns on Reverse Video print

Escape/F1/Shifted) turns off Reverse Video print.

Try experimenting with these and see if you can work out the embedded command to do Emphasized, Double Strike Italics.**

Incidentally, the thing I said I'd come back to was CHR\$(27),CHR\$(64) which is Escape/F1/7 to reset the printer to start-up state. The 64 is actually ASCII for the

commercial "at" sign (the key between the "P" and the "" on your keyboard). Maybe all this gibberish is starting to come together now?

The setup file above was saved by pressing the Isepic capture button and following that program's directions so that whenever I load my *Easy Script*, it's only 72 blocks long and I've made it the first program on all my *Easy Script* data disks. By doing that it loads with load "",8,1 or just by pressing "" if you have a Cockroach TurboRom fitted. Once loaded I change the word "setup" to whatever the new document will be called and start to work on it.

Centring

I usually use another "comment" to centre the title of the thing I'm writing and this is: F3/cn1; (note that the case of the centring command doesn't matter, but you should use a semi-colon rather than a colon on this particular command). Then type the title to be centred followed by F3/cn0 to cancel the centring command. If you don't cancel it the entire document will be centrally aligned down the paper. If you wish to underline the centred title just include 27/45/1 after the semi-colon and 27/45/0 before the F3/cn0.

There is an awful lot more to using *Easy Script* but this is what started me off on the right track and I hope it helps you overcome the problems as it did me.

If you want to see more articles on using this popular word processor then I suggest you contact the Editor, Andrew Farrell, at this magazine's address. He'll decide then if there's enough interest to continue and we'll do just that if interest does warrant it. This applies to all magazine content by the way. If readers don't let us know whether they like the content (or otherwise), we're not sure if we're doing the right thing. So drop a line, it's just up the Carrington Road from Bondi Junction and "let us do it right for you ..."

**Escape/E/Escape/G/Escape/4 for Emphasized, Double Strike Italics. □

Final Cartridge

We've reviewed this product before, but due to reader demand we've decided to reprint the review. Final Cartridge has proved to be a popular choice, for the reasons mentioned in this review by Andrew Farrell.

OF ALL the various speed up devices around for the infamously slow 1541, the Final Cartridge is one of the fastest. It is also one of the easiest to instal, consisting simply of the cartridge itself - with no dangling wires to obscure IC legs on your beloved machine's internals.

However, its true power extends far beyond the process of making your disk drive work a little harder. In fact, the Final Cartridge is more like a circus arena brimming with acts.

Centronics printer driver, function keys, BASIC 4.0 disk commands, a BASIC toolkit, RESET switch, hi-res printer dumps, turbo disk and tape operation and a machine language monitor, it was a miracle that they had room to fit all that in one convenient package.

Yet there is one more added bonus for BASIC programmers. It is true that the Commodore 64 is indeed a 64K machine. However the top 24K is lost beneath the

BASIC and KERNEL ROMS, both essential parts of the computer's personality. By switching these ROMS out when they are not needed it is possible to access this extra RAM. Many games use this space for storing program data such as graphics and music.

The Final Cartridge is powerful enough to allow this extra memory to be also available to BASIC. This allows plenty of space for those extra huge programs that you will no doubt be writing once you get your very own cartridge.

For centronics printer owners, the cartridge will drive a unit connected to the USER port using the correct cable. These normally cost around the \$60 mark, which is about \$70-\$80 cheaper than purchasing a dedicated interface to do the trick. According to the manual you may then print high resolution screen dumps, text screen dumps and program listings complete with all the usual Commodore graphics symbols.

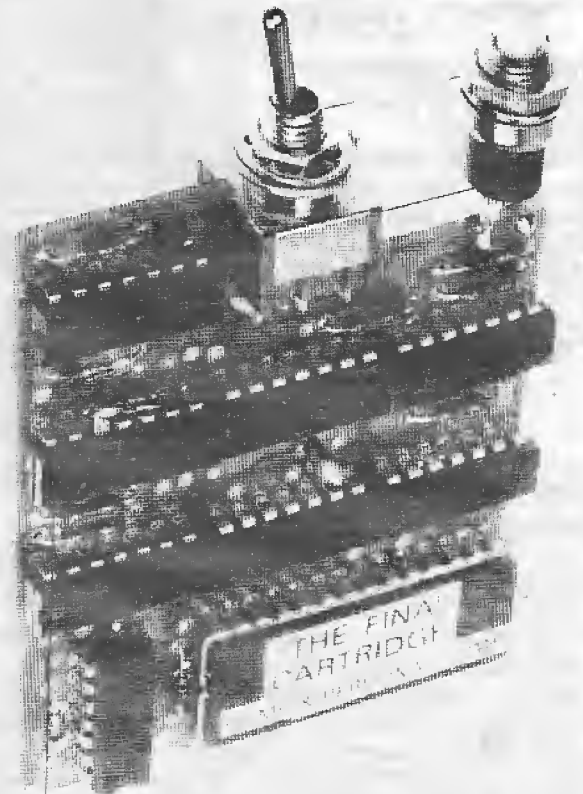
Some of the keys on the keyboard have been redefined to provide more useful functions. CTRL will pause a listing until you release it. CTRL HOME moves the cursor to the bottom left hand corner of the screen. CTRL DEL will erase everything to the right of the cursor on the same line. The function keys also provide the following commands:

F1 LIST
F2 MONITOR

F3 RUN
F4 OFF
F5 DLOAD
F6 DSAVE
F7 CATALOG
F8 DISK"

Pressing F5 on its own will LOAD the first program from disk. However, normally it is easiest if you wish to LOAD a specific program to press F7 for the directory, move up to the line containing the program name, and then press F5 to load it.

Disk operations were impressive. When compared with three other popular fast load devices, the Final Cartridge was always slightly faster in LOADING pro-



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grams. A 202 block program took 23 seconds to LOAD, compared to 128 seconds without the cartridge. This represents a 5.56 times increase. Saving was a little different, with some degree of variation from some of the claims made.

Best time for a 148 block program was 32 seconds compared to a normal SAVE of 109 seconds. This was a 3.4 times increase, still about the same as most of its competitors. Some commercial software wouldn't LOAD, which can be expected with most TURBO operating systems. A switch on the back of the cartridge allows the system to be switched off.

Tested on the Commodore 128D, we found it was necessary to hold down the Commodore key for the computer to power up into 64 mode. The cartridge would not automatically control selection of modes, although it worked fine in all other respects.

A machine code monitor is essential for serious programmers. Having done a fair amount of machine code, I could say I am pleased with the monitor built into this unit. It is similar to HESMON in a few respects. Displays may be scrolled in both directions, and single line assembling is catered for.

Overall, the Final Cartridge is a very-worth while addition to your computer. It worked to our expectations, and was obviously the result of some well thought out design work. Documentation supplied was of a non-technical nature and concentrated on what the cartridge does, without too much background information. More than ample for most needs. Price and availability does vary, but it is an investment you won't regret.

Distributed by Pactronics, (02) 407 0261. □

Features

Toolkit

The Toolkit provides the following, all of which work as claimed:

AUTO: Gives the line number in BASIC programming. Eg: 100,10 to start at 100 with increments of 10.

DEL: Deletes a line or block of lines as specified. Eg: DEL 100-250 deletes all lines between the given parameters.

OLD: Recovers a program after a reset on NEW command.

RENUM: Renumbers a BASIC program, including goto's and gosub's. (RENUM 10,5 starts at 10 with an increment of 5).

FIND: Searches for lines containing the given string, word or command. Ie: FIND "TEST" lists every line containing the word "TEST". FIND a\$ lists every line containing the variable a\$.

HELP: Lists a BASIC line which contains a mistake.

APPEND: As DAPPEND but for cassette.

DOS Commands

CATALOG: Lists Directory to Screen without affecting program in memory.

DAPPEND: Merges BASIC programs from Disk.

DISK: Reads the error channel.

DLOAD: Turbo loads program 5 times faster from

Disk.

DSAVE: Saves program 5 times faster to Disk.

DVERIFY: Verifies a program in memory with that on Disk.

Other Commands

LIST: Lists BASIC program and removes List protection if any.

MONITOR: Switches on ML Monitor.

OFF: Switches off all functions of FINAL CARTRIDGE.

CTRL/HOME: Puts the Cursor in bottom left corner of screen.

CTRL/DEL: Deletes everything after the cursor on the same line.

Note: Commands can be abbreviated in normal fashion. Eg. L shift O LOAD.

Function Keys

F1: LIST. **F2:** MONITOR. **F3:** RUN. **F4:** OFF. **F5:** DLOAD. **F6:** DSAVE. **F7:** CATALOG. **F8:** Disk Command

eg: F8 [return] reads error channel.

F8 [N:name, id] + [return] will format Disk.

Using the Function Keys you can, for example, load the Directory [F7] then cursor up to the program wanted and press [F5] to DLOAD.

\$1.50*

Australian Amiga Review

Hints and Tips

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Vol 1 No 4

Inserted In The Australian Commodore and Amiga Review

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Editorial

Amiga has taken another step toward the real world of computing. *Professional Page*, a true desktop publishing package, has been released by Gold Disk. As yet we have only toyed with the Beta version. It is without doubt to the standard that we have come to expect from machines such as the Apple Macintosh. In several areas, the Amiga program surpasses the Mac's power.

In time this entire magazine will be produced using the Amiga 2000, thanks to *Professional Page*. Together with *Wordperfect*, these two packages have given the Amiga a respectable image in the business world. We feel that Amiga owners are putting their machines to more serious use than most other computer owners. And that's not just in the business world. In future issues we will continue to give these areas special attention.

This issue of the *Australian Amiga Review* was produced with support from:-

MicroComputer Spot in New South Wales
High Technology in Victoria
Bruining Headlam in Western Australia

Andrew Farrell

Australian Amiga Review
Top Rear, 4 Carrington Rd,
Randwick, NSW 2031
(02) 398 5111
Published by:
Saturday Magazine Pty Ltd.
Editor: Andrew Farrell
Publisher: Gareth Powell
Advertising: Ken Longshaw
(02) 398 5111 or (02) 817 2509
Production: Brenda Powell

Layout: Amanda Selden
Subscriptions & Back Issues:
Tristan Mason (02) 398 5111
Distribution:
Selected dealers
and as part of *Australian Commodore Review*
Printed By:
Ian Liddell Pty Ltd

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Professional Page

by Gareth Powell

The biggest development in personal computers is undoubtedly desktop publishing. It is the buzz word of the moment.

WHEN DESKTOP publishing first started the number of machines and packages that could cope were very limited. Indeed, there was only one at the personal computer end - the Macintosh - and one high end business machine - the Xerox Star.

Matters have changed more than somewhat and there is now a wide range of machines and a far wider range of programs that will handle desktop publishing - to a greater or lesser degree.

The problem is that no-one is agreed where enhanced word processing ends and desktop publishing begins. For the record it is our considered view that very few programs give true desktop publishing. For the MS-Dos push - the IBM series and all their army of clones - there is *Ventura* and *PageMaker*. For the Macintosh there is *PageMaker*, again, *Ready, Set, Go!*, *Quark Express* and that is it.

On the Amiga 2000 it is perfectly possible to run *Ventura* on the PC side of the machine if you have the right cards inserted. It performs as to the manner born and for some time I have played around with it in this environment. But so far there has been no desktop publishing program for the Motorola chip side of the Amiga - the side where the fun and games lurk - which could be considered worthy of the name.

Now all that is about to change with the release of *Professional Page* from Gold Disk, a Canadian company.

This is a totally genuine desktop publishing package with all the speed and power of comparable packages on other machines. And, as we will see, in some areas it is ahead of the competition.

But it has one major fault. And if we were to ignore that problem we would be doing a disservice to

our readers. The problem is that the screen flickers. It flickers because of the technique of interlacing that is used to give high resolution graphics. This flicker is, to my mind, unacceptable and the programmers need kicking for thinking the world out there would accept such a nonsense.

My colleague, Tim Strachan, has produced for me a plastic filter screen which does away with the flicker and makes the program totally usable. And there is a CRT filter from Pacronics which also works.

"This is a totally genuine desktop publishing package with all the speed and power of comparable packages on other machines."

But this is simply not good enough. No program which runs the very good chance of giving you eyestrain within five minutes of booting should be allowed on the market.

Note that the program we were testing was an early beta version and it may well be that this fault will have been attended to before this program is released on the Australian market. We devoutly hope so.

If you buy this program - and there are good and cogent reasons why you should do so if you are contemplating desktop publishing - then you will simply have to buy a filter screen for your Amiga to make it usable.

How it works

Professional Page follows the well-known Wimp interface which was originally introduced by Xerox at their Palo Alto Research Centre in California and later copied with great success by Macintosh *et al.*

The Wimp stands for windows, icons, mouse, pull down menus. It is now a very standard format and anyone who has any experience of desktop publishing will be able to use *Professional Page* with facility and ease almost without looking at the documentation. (In our experience no one ever looks

at the documentation until something goes sadly awry. Then they pull it from its plastic sleeve and frantically thumb through to find the essential information to set them back on the right track.)

When you first boot up you see a title bar with page number at the top of the screen, a boxed group of icons on the right hand side - the gadgets - and the rest of the screen is, effectively, your electronic layout pad. A running set of figures in the top right hand of the title-bar gives you a positive indicator of the cursor position,

which is a great aid to pinpoint accuracy when placing type and pictures.

The gadgets, jointly and singly, allow you to perform all the functions of desktop publishing.

From the title bar you have a series of pull down menus which allow you to control the program.

The first pull down menu is "Project" which has the standard New, Open, Save, etc, instructions which allow you to control your files, start a new page, save, call from memory and so on.

Templates

The second pull down menu shows the direction in which desktop publishing packages are developing. This menu lets you call up templates which is a style very much after the way *Ventura* operates. My guess is that desktop publishing packages without templates are going to have a hard time of it in the future. Because with templates you can keep all of your basic designs on tap.

In other words you can design a magazine, a page, a booklet - what have you - and keep all the basic underlying features as a template. Then, at any time in the future, you can drop in new copy, new illustrations and it will automatically be made up exactly to

the original specifications.

With templates desktop publishing can be speeded up by an order of magnitude. As well, professional designers can produce a series of templates - they already have for *Ventura* - which allow you to produce superbly professionally designed output, extremely quickly and cheaply. Which is what desktop publishing is all about.

The "Box" pull down menu allows you to set up wrap-around text, add borders and many other design and typographical tricks.

An essential feature of this program is the way in which it allows you to treat collections of boxes or text as a group and move them around the page. Using this feature you can get precise alignment of all the features within those boxes in a way that is almost impossible with some of the other free form programs.

The pull down menu "Text" allows you to use a word editor for making changes to the text. Although it is perfectly adequate it does not contain a spelling checker and this program is not suitable for use as a stand alone word processor as is, for example, *Ready, Set, Go!* on the Macintosh.

"Type" offers you kerning - the squeezing together of two letters for maximum optical adjustment, tracking - for moving letters up and down - hyphenation (sadly, American) and justification. You can also specify the type style, size and weight providing that type is available to you. It contains, in other words, all the tools a typographer would want.

Under "Drawing" you get the option to choose line weight, line pattern (a very iffy proposition) and fill pattern (even ifier). By and large keep away from these damn patterns for the end result is nearly always visually lousy.

"Color" (note the American spelling) allows you to select colours for separations. Now we come to the part of the program which drove Tim Strachan and I quietly crazy. For a reason we have not been able to fathom you can select colours for the making

Letters

of separations but you cannot access the colours on the screen so that you can see what you are doing. This seems to me to be barmy. The reason why I use a colour monitor is to use colour to define the various elements in a program on which I am working. To produce a program for the Amiga without colour selection capabilities seems to me like supplying a hearing aid without a battery. (But this is the beta version)

"Preferences" allows you to define the level of screen magnification, to select grids - the most essential adjunct to good and professional layout.

The gadgets down the side allow you to create boxes, to size, move and adjust them and to produce simple graphics. It even allows you to construct Bezier curves which means that an illus-

tration - no matter how complex - can, with a little ingenuity, always be converted to a PostScript file.

From the keyboard there is access to a further group of commands, one of which gives you the power to insert an en, em or thin space for manual manipulation of lettering. A typographer's dream.

Conclusion

What this program has is, for my money, the best of the features available on all the other desktop programs. From *Ventura* it has templates, from *PageMaker* it has free hand capability, from *Ready, Set, Go!* it gets tight typographical control.

Pretty impressive. Now, if only they will do something about that damned flicker I can switch all of my publishing over to what appears to me Jack the Lad of desktop publishing programs.

New music program

Audiomaster for the Amiga provides musicians with a chance to sample top quality sound. Written by Australian, Peter Norman, it will be marketed by Aegis Development.

In essence, *Audiomaster* takes digital sound samples and allows you to modify them. Special effects can be added, such as an echo. Once you've finished fiddling, the result can be saved as an instrument.

Sonix, a music package, can then LOAD a sample and play it back as an instrument. For example, you might record the percussion track from your favourite

song. Having tailored it to your own tastes, the sample could be used in your own composition.

The quality is astounding. Played through a reasonable stereo with Hi-Fi reproduction, you could easily mistake the result for an AM radio transmission.

The cut and paste abilities of *Audiomaster* are a first on a machine as inexpensive as the Amiga. Previously these facilities were only available in sound studios using equipment costing thousands of dollars.

Aegis expect to release a finished version soon.

RAM

Here is a way to help single drive owners who have used your idea of copy all frequently used commands to ram: (AAR, vol 1 no 1).

Instead of prefixing all commands with "ram:", use this command:

>PATH ADD ram:

According to the AmigaDOS 1.2 MANUAL, "the PATH command lets you add, see, or change 'search paths': directories that AmigaDOS searches when looking for a program to execute. By default, AmigaDOS searches the current working directory, then the SYS:C directory for a program".

What that boils down to is that whenever you type in any command, Amiga DOS will search for it in the current directory that you are in, then it will look through any other directories that you specify with PATH. If you just type in PATH, you will see all the directories that AmigaDOS will search through.

The only problem I've found so far is that the DIR command requires the boot-up disk to be present or else a "ERROR 226: no disk in drive" pops up. To get around this, I used:

CD ram:

CD df0:

After that, DIR works happily from ram:. Has anyone got a good explanation for this?

Soh, Kam Hung
Clayton, Victoria

Upgrading to Amiga

Congratulations. It's great to see that you are now catering specifically for the ever-growing group of AMIGA users.

I purchased an Amiga 1000 model during the recent cashback promotion and suffered many frustrations and self doubts. My first obstacle was that the software I purchased said "Use Kickstart and Workbench 1.2". Where was this elusive software? It wasn't included with my new machine.

So I phoned Commodore in NSW. "We only supply version 1.1 with these machines" I was told; "Send \$30 and we'll update 3 of the 4 disks you received."

Obstacle no.2: I messed up formatting a new disk. "Use Disk Doctor" the wonderful machine told me. Disk Doctor did not help. Someone suggested I use the CLI. Great.

What is it? How? Amiga DOS manual is not supplied with the AMIGA 1000. Another \$40 will sort you out.

Obstacle no.3: My early version of *Superbase Personal* has a printing bug in it. Commodore Aust. was previously the distributor but told me it knew nothing of bugs or updates. I guess they don't read *Aust. Commodore Review* - Ram Rumbles May 1987.

Is there light at the end of the tunnel? You bet. I phoned England direct (when my next phone account arrives I'm off to somewhere safe like Iran). I spoke with John Barrs at Precision Software. He was most helpful and apologised for the present lack of a *Superbase* distributor in Australia.

Any *Superbase* owner can emulate my actions. Send your original disk + \$4 Aust. to Mr Barrs, Southview, New Road, Whitehill, Bordon, HANTS GU359AX, England. I sent mine airmail and received version 1.049 (9-7-87) just 12 days later. That is SERVICE and the new *Superbase* is superb.

In conclusion I'd like to say that I now consider the Amiga to be an excellent machine. But if - like me - you are a previous 64 or 128 owner, be warned. It's no upgrade but a whole new ball game. Happy computing.

Peter Browning
Kewdale, W.A.

Amiga Review 3

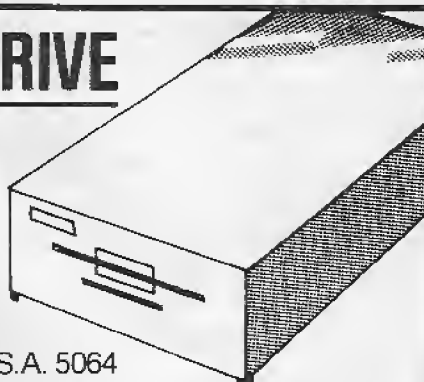
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B.E.S.T. Business Management System

by Andrew Farrell

SEVERAL COMPUTER magazines have already named B.E.S.T. as product of the year for 1986, and rightly so. B.E.S.T. is an accounting system that has genuinely broken new ground. The package does not rely on multiple disks to store the suite of modules or independent programs. Instead a single 880K disk contains the entire ball-game.

With Amiga speed, and B.E.S.T.'s integration, businesses that would otherwise hesitate at the idea of computerising their book-keeping will find this program an affordable accounting powerhouse.

Minimum requirements are an Amiga with 512K and one disk drive. The system allows the user to upgrade to a larger system at a later date. I installed B.E.S.T. on the Amiga 2000 equipped with a Janis Hard Drive. Having booted the software the integration becomes more pronounced.

A diagram is displayed on the screen which is in effect a flow chart of the accounting processes handled. At the heart is the General Ledger. As the manual so aptly puts it, this is simply a place with relevant buckets for collecting information back to a central point.

Ideally it would be nice not to have to familiarize oneself to any great degree with accounting terminology. In practice a small amount of knowledge is essential, and the assistance of an accountant would be invaluable.

Having entered today's date, which may be automatically updated by an inbuilt clock/calender, the main menu is displayed. B.E.S.T. makes use of Amiga's point and click philosophy. The only time you ever need to type, is to enter information that you would normally have to write.

As an added bonus information is saved as you work. There is no chance of losing your data because of an inadvertent loss of power or an accidental lapse in memory on your part in saving or exiting correctly. With each new entry a save or done prompt appears. Clicking on save securely places new information on disk and gives you peace of mind.

This is a big plus over comparable packages which insist that the program be exited by one path only. Often information is only stored in RAM and written to the disk drive at a later time. This leaves your work volatile to mishaps. B.E.S.T. has overcome this problem.

Moving between various functions is fast. Speed is attained by using small memory overlays, invisible to the user.

Because the program allocates only the amount of disk

there was a section labelled Getting Started it tended to be too in-depth to quickly arrive at a practical solution to my initial curiosity. After re-reading several sections and a little experimentation, the puzzle pieces soon came together.

Once you feel at home with B.E.S.T. the product's talents start to shine through. Moving from inventory to invoicing, then back to the General Ledger to see the effect, can be done at the mere click of the mouse. For the

quired data items. It is clear that this program has been designed and programmed by individuals who are well versed in the procedures and the requirements of business management.

Report design and printing are handled ingeniously. Standard report forms such as Sales Report and Price List are pre-formatted and available in the system. Other reports, such as balance sheets (up to 15), can be custom designed and saved on the data disk.

Two different procedures are used, one for General Ledger reports, another for Inventory and Services reports. Report creation from the General Ledger offers a number of entry lines into which you can type the accounts or items that you want displayed. The open framework construction of the General Ledger Report Writer screen provides the creative flexibility that is desirable when devising financial reports.

Somewhat more structured is the Report Writer used with the Inventory and Services data bases. Here, you're presented with a listing of the database fields and the space to print up to 10 in a report (to a total of 80 report lines) along with the ability to limit and sort fields (inventory items of 10 or more, for instance, printed in ascending or descending numerical order).

Conclusions

Next financial year, if not sooner, I'll be putting my accounts onto B.E.S.T. It's the easiest to come to grips with, and by far one of the fastest. Without the headache of disk swapping, and with the simple to understand screen layout, you can concentrate more on running the business and less on the physical movement of information within it.

Top marks. Future updates will include a payroll module, and an even further improved menu system. How much better can they go?

Our review copy from Able Australia Pty Ltd, P.O. Box 215, Gladesville 2111.
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"With Amiga speed, and B.E.S.T.'s integration, businesses that would otherwise hesitate at the idea of computerising their book-keeping will find this program an affordable accounting powerhouse."

space that it actually needs and never uses more than 512K of RAM, it defines system capacity in terms of disk storage. The maximum capacity would occupy 8.4 Megabytes of storage and encompass 3,000 inventory items, 1,000 services, 500 General Ledger Accounts, 25,000 transactions, 2,000 accounts receivable, 1,000 accounts payable and 1,000 invoices/purchase orders/cheques.

Starting out

The first and most time consuming job is to set up a complete chart of accounts. These include standard cash sales and income accounts to employee insurance and advertising expenses. A little forethought here will make the going smoother later on.

Our review copy did not include any predesigned charts and the manual only includes one example. However, I'm assured that several data disk templates covering a variety of business situations are available.

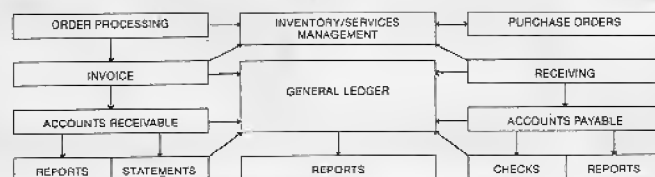
At this stage I found the manual to be more like a reference guide than a tutorial. Although

business man this allows him to see the true effect of day to day transactions.

Having entered a few inventory items, I immediately proceeded to accounts receivable. Here the data screen allows space for the customer number, name, address, phone, contact person and a current balance as well as aging for 1-30 days, 31-60 days, 61-90 days and over 90 days. There is also space for the current cash amount on order, credit limit, month-to-date, quarter-to-date, and year-to-date sales, year-to-date freight charges and the lowest percentage and/or amount of a bill that the customer is allowed to pay.

By clicking the mouse in the upper corner of the screen, the program displays an alternate transaction screen listing date, descriptions, and amounts for up to 240 lines of customer transactions.

Every module, from ledger to services, prompts the user for this degree of detail. It is up to you how much detail you supply, though you cannot leave a screen without supplying the minimum re-



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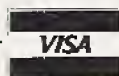
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Hints and Tips

by Tim Strachan

Workbench

● Want to see a little trick? Click in your Workbench window to activate it, and then press simultaneously the SHIFT and ALT keys (both sides, ie 4 keys at once), and while they're pressed down press any of the Function keys (maybe with your nose!). Keep an eye on the Workbench title bar ...

Going even further ... Keep both SHIFTS & ALTS pressed, and any of the function keys as well: then eject your Workbench disk (check title bar); then push it back in. Did you see a little message for about 2 seconds??

Programming

● C Tutorials

For those who'd like to learn more about the C programming language, there are various sources of good information: You can get a subscription to KICKSTART magazine from England through Commodore here, which has an ongoing & in-depth tutorial series (get the back issues too); or you can get onto the C USERS BBS on (02) 560 3607, which has a C tutorial section; and of course, look at the many examples of C source code on the Fish Disks. *Amiga World* magazine has occasional tutorial articles too, as does *Amazing Computing* (which is hard to find here).

Miscellaneous

● Deluxe Paint

A few little undocumented capabilities include: the 7 and 8 keys subtract and add to the level of red in the currently selected foreground colour; likewise the 4 and 5 for green and the 1 and 2 for blue. If you press the Help key, colour 1 will be set to black and colour 2 to white, useful if you've got a palette which makes gadgets invisible. And the braces ({ and }) let you move through the palette to choose the background colour just as the square bracket keys let you choose the foreground colour.

Generally speaking, it's well worth reading the manual for *Deluxe Paint* carefully, as there are many very powerful commands available with the press of a key. That fellow Dan Silva is something

of a genius with software. As he says: "We do have to look at computer painting as a new medium, not as an emulation of old media, it does not do some things as well as other methods, but it does some things that are impossible with old media. The medium gives people something they did not have before."

● Graphics & Text & Speech

On Fish 80 there is a clever piece of programming called PRINTEXT, which is a utility which will display both text files and graphics with scrollbar, arrow gadgets, word-wrap, search function and online help. There's also an option to have the page or the whole text file spoken to you!

I know a guy who gets a recording of files from the Amiga to play in his car as he gets around. For kids, it might be a pretty good way of learning how to read; or it could come in very useful for partially sighted or blind people; or you could use it as a change from eyes to ears every now and then.

● Flipside

This is an excellent Print Utility, recently available from the same people who brought us *Scribble*, which allows you to print practically anything (text or graphics) in a variety of ways from the Workbench.

It brings up a requestor which allows you to change margins, fonts, aspect (sideways or normal), and it multi-tasks, so that you can be doing something else while the printing is going on. So you can print large colour graphics, banners, spreadsheets, etc. Worth getting, so ask your dealer.

Hardware

● If you're thinking of adding a RAM expansion board to your Amiga, ask these questions: if it attaches to the Amiga's bus (on the side of the machine), does it have a "pass-through"?; does it "auto-configure", ie, will it be immediately recognised for what it is when you boot up??; and is it a "no-wait-state" device, meaning fast???

● the difference between "Auto-configure" and "AddMem": both of

these allow your Amiga to recognise devices attached to the expansion bus - Autoconfig is built into the 1.2 system software, and allocates memory space to the devices on the bus, and is the preferred way of doing things. Addmem is not automatic, but requires that you decide what devices get allocated what memory, but doesn't guarantee that devices will not use the same memory space. Real products use Autoconfig. (See Megadisc2 for an article on the Enhanced 1.2 Operating System).

● Those who don't yet have a second drive are probably very keen to get one. A number of local suppliers are selling, or about to sell them, for pretty good prices. Have a look at the article on Local Products in this issue for details of where and how to get them. Some people might like to get a 5.25" drive which acts just like a normal 3.5", but has the advantage of using disks which are much cheaper - useful for making back-ups, especially of a hard disk.

● For those who like to use HIRES but are annoyed by the flicker of the interlace screen, there is

another simple near-solution: go to a plastics dealer, and get a 13 x 10 inch piece of perspex cut, say about 3mm thick and with a dark tint. Stick it onto the front of your monitor with some Blu-Tack or similar, and you'll see a big difference - it cuts both the glare and flicker significantly. I got mine from "Cut-to-Size" Plastics in Whiting St, Artarmon for \$10.

Memory

● If you're very low on memory, you can free some up by closing as many Workbench windows as possible. To close up all the windows and still have a program icon to click on, drag the program's icon outside its window onto the Workbench screen (which is the backdrop window). When you've finished, make sure you drag the program icon back into its usual window.

If you must have some windows open, you can minimise the memory requirements by not letting them overlap. And if you're really desperate, you can unplug your extra drive which takes about 30Kbytes. And if all else fails, get a memory expansion board.

Australian software and hardware

Here's an update to the information about local products in the August issue. People are getting their act together in this country, and as you'll see below, useful products are appearing. If you've got any information about local products that you'd like to see listed here, please write in and let me know. I'd also like to hear of any experiences with any mentioned here, and you could even send in a review if you felt inspired.

* Proton MicroElectronics

(08) 277 0323
RAM boards
512K \$470
1 Meg \$590
2 Meg \$980 ... Clock \$95 extra
(See Review last issue)
Drives 3.5 and 5.25 (\$340, 665,915)

Hard Drive soon
Framegrabber soon

* Bruining-Headlam

(09) 381 2988
NTSC TO PAL conversion kit \$80
VTEL Viatel software \$80
Dot Matrix Printer driver (>9 pins)
NEC CP6/7, LQ 2500 Epson etc
MIDI interface \$90
Distributors of:
Liquid Light Palette Interface
Multiport Controller 10-way RS-232 interface
PAL Framegrabber soon from Germany \$2500
HAM too, all models
Alegra RAM board 2 meg \$1200

* Multisoft

Julie Kelly, 1133 Hay Street,
Western Australia, 6005
(09) 322 6637

(continued on page 10)

GO 64!

A Commodore 64 Emulator for the Amiga



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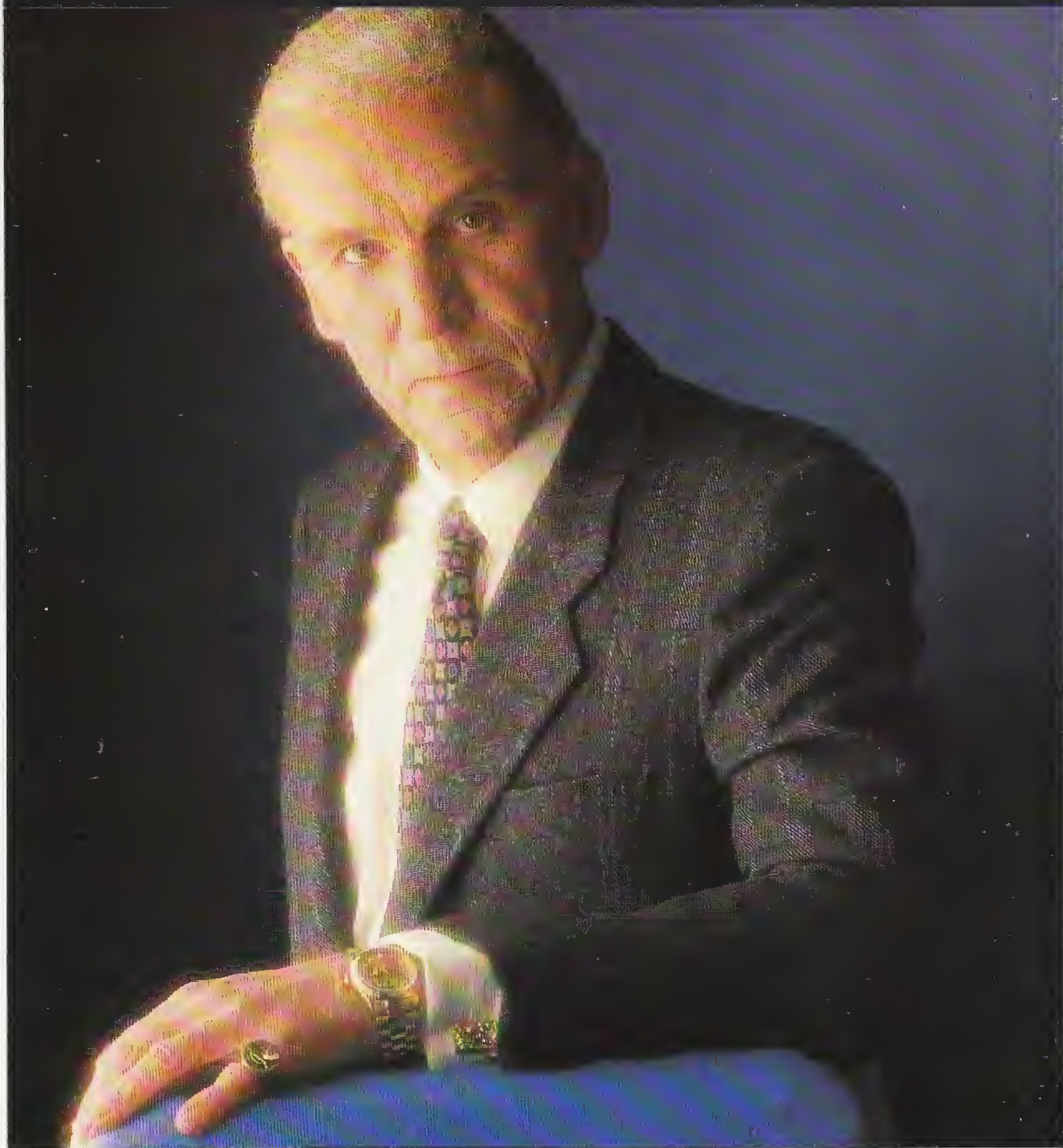
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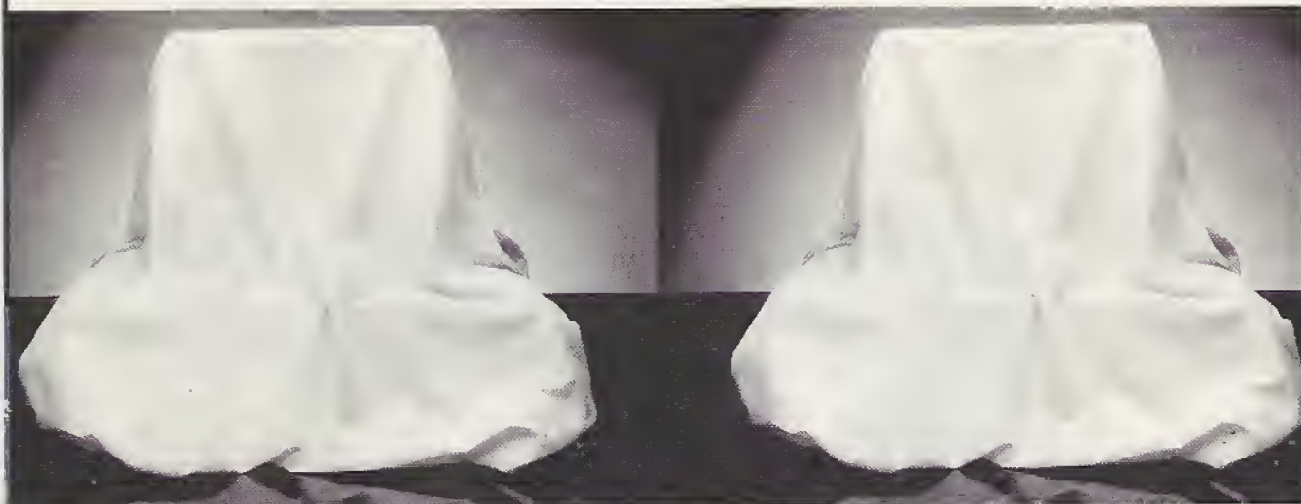
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- Needs Transvector for Use with Amiga 1000

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- Music and voice synthesiser built-in
- Large range of software available (over 500 commercially released packages)
- Compatible with all commercially released AMIGA 1000 software**

AMIGA 2000

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The Commodore AMIGA 2000 is the ultimate personal computer designed for use in Business, Industrial Control, Video and Graphics Applications. The AMIGA 2000 has set a new standard in price performance with outstanding GRAPHICS, SOUND and ANIMATION and capabilities that provide the power you need to improve the quality of your work for \$2999* R.R.P.

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Hard Drive - "FastDrive 100" for all Amiga models.

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MAJOR Accounting system, 9 disks, ported over to Amiga, consists of 12 modules which can be used separately or together.

*** HC Software**

(08) 42 8377

Amiga Information Base - a record manager which currently exists as Version 1.2 (written in AmigaBasic), will be soon released as Version 2.0 (written in Machine Language). Also an Accounting package is nearly completed, which can be used with their Record Manager for exchange of files. (Also act as agent for Proton MicroElectronics)

*** Neriki**

(02) 957 4778

Polaroid Palette interface
Genlock soon to be available

*** David Broadbent**

Genlock - he will be producing two versions. Expected price is \$1000 plus sales tax. More information on this as available.

*** "The Diskdoctor"** - ring MegaDisc for details ((02) 959 3692 or 436 4659). He has developed a 5.25" disk drive for only \$350. It behaves just like a normal Amiga 3.5" disk drive (so no need for PCUtilities, or DOS-to-DOS software). Simply connected to the Amiga 1000, and useful for using the much cheaper 5.25" floppy disks as a means of storing data, etc. This gentleman will also fix any Amiga with PLA (Programmable Logic Arrays) which will not handle expansion RAM - this seems to happen to about 10% of Amigas. His charge

is \$85 for parts and work, and the Amiga must be delivered and picked up.

*** Norm Jackson** - call Mega-

disc for details (see below)
X-1000 RAM expansion subsystem, which includes a 2 channel DMA controller, refresh control, a built-in battery backed-up clock and SCSI interface. The main use of this system is intended as a Hard Disk Controller, which is also available from Norm.

*** Subordinate Systems Pty Ltd** P.O. Box 109, North Balwyn, Victoria 3104

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1 MEG : \$895 . . . 2 MEG : \$1095 .
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45 MEG Hard Drive : \$3195.
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*** FBN Software** in Canberra has a program called SMARTKEY by Craig Fisher, which allows you to program any of the keys on your keyboard for any sequence of characters. Check the ACT BBS for information on this (See GROUPS & BBS's Listing in the last issue).

*** Megadisc Digital**

Publishing - produce a Magazine on a Disk for the Amiga. Three issues now available, singly for \$19.95 or Subscriptions of \$50 for 3 issues, or \$90 for 6 issues. Available from your dealer or directly from Megadisc: P.O. Box 759, Crows nest 2065.

Ph: (02) 959 3692 or 436 4659. Full range of Public Domain Disks and Theme Disks on specific subjects (graphics, fonts, demos, etc) also available for \$8.50 each (ask for the Catalogue-on-a-Disk). □

Turn your Amiga into a printer's shop

by Eric Holroyd

I recently had the opportunity to check out the Amiga version of this great printer utility. As I already had the program for 64, it was pleasing to see it had made the transition to the Amiga.

If you've never seen *PrintMaster Plus* then let me tell you what it's all about.

Briefly, it's a program to turn your Amiga into a printer's shop. You make your own stationery, greetings cards, banners, calendars and posters which you print out right on your own printer.

A large range of typefaces (fonts) are available plus a huge choice of graphics with which to adorn your creation. You also choose the texture of the font for each line of print, plus the size and positioning (left, right or centre) of each line.

With most of the print jobs it's a case of making your own master, then getting bulk runs of posters and stationery done by photocopy or instant print.

When running *PrintMaster Plus* for the first time you need to go to

the Hardware Configuration choice on the menu. Here you select your type of printer, test that you've made the right choice, then save it to your disk for future sessions.

The following printers are supported:- Stargem, PJ 1080OKI 84OKI 82, Thinkjet, IBM, Epson JX, Epson FX, C-Itoh, Blue Chip, MPS 1000, Toshiba, LQ 1500.

In all *PrintMaster Plus* menu screens you move the highlighter around the screen with the mouse or arrow keys, using the left mouse button or return to confirm your choice. To select your printer, just highlight it and confirm. You then need to decide whether to have the Amiga send a Return (called CR) at the end of each line or a Return plus a Linefeed (called CR with LF). Select one of them, then go to Test Printer.

If you made the right choice the printer will print a little Christmas tree as a test. If you chose wrongly the printhead will stay on the same line and you'll know then that you need to make the other choice instead. Very easy (as is the whole program!) and once you've got the Christmas tree to

print on your paper you've defined your printer setup correctly.

Before you leave the hardware configuration menu you may like to set up Drive 1 as the drive for your data disk.

That's presuming that you're using two disk drives. The last thing in this menu is to tell *PrintMaster Plus* what version of Kickstart you're using. It asks if you're using V1.1 or a higher number. Having answered that you go to "All Done" and the information is written to disk and you've no need ever to use hardware configuration again unless you get a different printer.

Want some letterheads?

Now you're ready to go to work on whatever print job takes your fancy. Want some letterheads? Simple! Select Stationery and you're presented with another menu asking if you wish to design New Stationery or Print/Edit existing Stationery. You'd select Print or Edit if you had your letterheads stored on a data disk but for now

you'd choose "New".

Having selected this the next menu allows you to choose a font for the top of the letterhead, a font for the bottom, plus two graphics for the top and again for the bottom. You may not wish to use all of this and of course the choice is yours. You may separate the graphics and text from the body of your stationery with a line too.

Once you've designed your notepaper you choose Print/Preview, whereby the program does the work of assembling the components you've chosen, then it displays on screen just as you'll see it when it's printed. Great. Now press the print button for a printout.

After printing you're given the option to save it to your data disk for future use. This is terrific because you can do stationery for family and friends, using graphics from over 120 from the selection already on the program disk.

Match a graphic to an occupation or hobby and the stationery will be truly personalised. You can place the selected graphic at either or both ends of the line, or

continued on page 14)

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Microcomputer Spot declares war on the northern suburbs

Microcomputer Spot stores are expanding into Chatswood and Hornsby in order to bring their excellent prices and services to our northern suburbs computer users. Early reports received to hand are that the competition is quivering as the price war now expands and many are running for cover.

MR RAY Bermeister, manager of MICROCOMPUTER SPOT, said that they are setting up these outposts in order to reach the vast number of customers that they have now, who live in the north and are fed up with battling Sydney's traffic in order to receive goods and services at ridiculously low prices. He also said that a central service centre

will be opened in order to further improve their quality and speed of service as well as to increase their bulk buying facilities so as to make your prices even cheaper.

With Christmas coming and a bumper 1988 expected in home and small business computers we wish Microcomputer Spot all the best into the future and congratulate them

in their endeavours to improve our ability to receive Commodore and other home computer support.

The new Hornsby store is located at 35F Hunter Street, Hornsby (near McDonalds). The Chatswood Microcomputer Spot will be opening soon at Shop G9, Chatswood Place, 445 Victoria Avenue, Chatswood.

Microcomputer Spot has also established overseas contacts in order to bring the most up to date new products, software and hardware, direct to the public as they are released. One of the most excit-

ing of these items is the new 'C' Limited 22meg and 33meg hard disk drives for the Amiga. These disk drives come complete with 10meg of FREE software, SC51 interface, auto config and is pass through and fully compatible with all known peripherals.

There is no doubt that Microcomputer Spot have now developed as Australia's largest Commodore and Amiga specialists with locations in the City, Burwood, Parramatta, Hornsby and Chatswood. They must be the best people to go to for the best range and prices. □

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have one graphic in the center, or three or five graphics centred, or choose "Background" which prints a series of your graphic across the paper and behind your text. There's ample scope for creativity with such a lot of choices.

Print a poster

In Poster mode you design and print a poster using the full size of your 66 line paper. With this one you have a choice of 11 different borders to enhance your work plus text in whichever font you select along with two

graphics. (When choosing a border the program asks "this disk or a different disk?" which prompts me to think that there may be additional disks of borders and possibly fonts released at some future date. PrintMaster Plus has obviously been written with this in mind so it could soon be even more versatile.)

You choose the "texture" of your font too, choosing from Standard, Silhouette, Shadow, Rain and Checker. Lastly you decide whether you want the graphics to be Double Size, Regular Size or Half Size and if you want them

placed in a Diagonal pattern, or as a Background or placed "Freehand". In the first two choices placement is preset whereas with Freehand you decide exactly where you want to put the graphics.

All of this is so much easier to do than to explain and the whole program is very easy to work with, being entirely menu-driven.

Once again, having designed your poster you choose Preview/Print and your work is displayed on screen prior to printing out. After printing you're given the option to "Reverse" the image. This means to make a mirror image, not make it into a negative, and is very useful if you need to have the image "back to front" for iron-ons etc.

Also after printing you have the option to Save your work to your data disk for reprinting and/or editing at a later date. This is a very useful feature if you're making up say, a poster for your Social Club announcing this month's meeting date. Once you've made the first one and saved it you'd just re-load from your data disk, substitute the date for next month's meeting, then print it out. Simple.

If you want a banner to hang over the stage at the Annual Ball just select "Banner" from Project Choices, pick your graphics and font, type in your message and away you go. This prints the lettering lengthways down your printer paper and you can print a banner as long as you like. Looks great too.

There's a Calendar maker that lets you include a graphic and a brief message on your choice of days. Just nominate the month and PrintMaster Plus displays the right calendar ready for you to enter your own "reminders".

Handy for home or office use (you can have it right there in print for all to see that it's your birthday on the 17th!)

Designing graphics

There are over 120 graphics included on the program disk and probably double that number with the Art Gallery disks (1 and 2 are available now) but if you still wish to create something different or extra-special then select "Drawing Pad" from the main menu.

Here you can design a graphic from scratch or modify an existing one. Again, use your own imagination and you can really make it personalised. You'll probably discover for yourself many wonderful and practical uses for this excellent piece of software, but there's also a book available entitled *The Creative PrintMaster* which offers lots of ideas and techniques used by design people. This will help you to get the most out of PrintMaster Plus and you should be able to get it where you buy the program itself, available at good computer shops everywhere.

PrintMaster Plus is distributed in Australia by Dataflow, 134 Barcom Avenue, Rushcutters Bay, NSW 2011. Phone (02) 331-6153.

Full Range of Commodore PCs & Software

The advertisement features a central logo for 'THE BRUINING HEADLAM AMIGA CENTRE' with a stylized 'A' and 'B' inside a square. Surrounding this are several Commodore computers and software boxes. Labels include 'AMIGA 500', 'AMIGA 1000 KIT', 'AMIGA 2000', 'PC10', 'PC20', and 'PC40'. A 'New' starburst is placed near the AMIGA 2000. A 'Free Library Access' tag is near the PC40. A 'Customer Bulletin Board' tag is near the top left. A 'New Software Imports Direct from U.S. Arriving Monthly.' tag is near the bottom left. A 'commodore COMPUTER' logo is near the PC40. A 'AT COMPATIBLE' tag is near the bottom right.

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What's New at High Tech

NEW PRODUCTS just keep on coming for the Amiga, and they just keep getting better.

A new video digitiser from Germany digitises at up to ten frames per second, which means that real time frame grabbing from a video camera or video recorder is now possible. As the unit is of German manufacture (which reflects in the high quality of the product) it is designed to make the most use of PAL Amigas, that is, it displays 512 lines of screen image.

The digitiser can also be used in a similar way to *Digiview* - with three separate colour filters supplied.

All resolutions are supported, and the software features many options including an interesting difference mode. This mode displays only the difference between successive images, so that you can see immediately if anything has moved.

While on the topic of images,

we have just received news of a new Genlock for the Amiga 500. Genlock allows you to synchronise Amiga screen output over video signals. The new unit will be substantially lower in cost than the A8600 Genlock and yet have higher quality output. Stocks are expected in before Christmas.

For those with the Amiga 500 or 2000 connection blues, you can now get a low cost 'Gender Bender' so that you can use products such as *DigiView* and *FutureSound* on your new computer. The 'Gender bender' is specifically designed for the job, and so there is no need to worry about blowing up your peripherals with voltages in the wrong place.

Word Perfect, the new high powered word processor is creating quite a storm. A recent review heralded *Word Perfect* as 'finally turns the Amiga into a credible business micro'. Being written totally in machine code, the Amiga

version of *Word Perfect* operates faster than on a P.C. Features include built in spelling checker and thesaurus. True footnotes and multi-column text are supported, as well as keyboard macros. The range of facilities should satisfy the most demanding user.

If you're into audio digitising and manipulation, then *Audio Master* is a must have product. The waveform data is graphically displayed for easy recognition. What a word processor is to the typed word, *Audio Master* is to digitised data, allowing you to cut, paste and edit 'on screen' with your mouse. Teamed with a quality audio digitiser like *FutureSound*, turns your Amiga into a powerful audio editor/manipulator.

With Viatel gaining more members each day, it's good to see the availability of high quality communications packages for Viatel access. Two new Australian packages have just come in, which also

allow ASCII comms.

And if you're into comms and haven't seen *Diga!* yet, you'd better come in for a demo - it must be one of the most advanced comms programs for any computer.

One of High Technology's services that is not so new, but is currently experiencing an upturn in interest is our training courses. Our new range of Amiga courses are very popular with new owners and those that want to get more out of their computers. Most courses are run at night for your convenience, and course notes are supplied for future reference. For more details on our course please give us a call or drop in to:

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Amiga BBS Forum

We have captured, for posterity, the more interesting and thought-provoking comments, hints and tips and general chit-chat from leading Bulletin Boards. Here's a sample to whet your appetite. More next month . . .

Flight Simulator II

One very interesting mode offered by Flight Simulator I allows two players to fly simultaneously when connected via modem. A few have had problems getting this mode to work correctly.

Paul Bartholomew offers some helpful advice:-

"...once you send your aircraft positions down the serial line, it takes about 1 minute, (according to the manual) for the two computers to figure out what's happening and to draw the aircraft. Once that's done, just use Track mode, which tracks between each aircraft instead of between the tower and aircraft.

"Use F9 and F10 to zoom in and out of the view."

Deja Vu - Hints!

If you're stuck in this game, try these tips from Phillip Dean. He's been playing *Deja Vu* for some time.

"...With the Taxi, you type in where you want to go, and when you get there you have to pay him (*The driver - Ed.*) 75c (3 dimes)!

"Then when you have to get back to where you came from, get back in the cab and tell him to take you to PEORIA St. You will then be back where you came from.

"When he brings you back it will cost you another 75c, but don't pay him! Just hop out! If you go further left, you will find a second cab on Peoria St, you can hop in there, and again go somewhere, pay him the 75c, then you can come back to Peoria St, but don't pay him on your return as you can't afford it! (If you give him your \$20, he takes it all and doesn't give you your \$19.25 change!)

"Unfortunately, after that, you can't ride the taxis again until you pay them for the last journey!

"I have seen various game saves, and one bloke had a whole heap of dimes, but I haven't been able to find where he got them all from.

"The way the game is, you can't really afford to go to all the places you really need to, to solve the game.

"For instance you have to go to one place, and you then find the address of another place you have to go to, then you find the key you need, so when you go to the third place, you can open the door. However, you don't have enough money to make all those trips.

"The game has a slight bug... it lets you solve little puzzles, without going through all the steps each time!

"For instance, have you found the office on top of the bar with the dead body? Well, there is a safe there. In one of the places you go to in the Taxi, you find a slip of paper with the combination. The game however doesn't note that you have been to the location and found the paper.

"Next time I played (not having picked up the piece of paper, but knowing the combination from my previous game), I was able to open the safe!

"In the same way, you can skip going to the first place by Taxi, as the only thing you find there is the address of the next location, so instead of going to place 1 then 2, you can go straight to place 2 (as I said, technically, the game shouldn't let you do that!)."

Amiga 2000 extra RAM!

Everyone knows the Amiga 2000 arrives complete with a full one megabyte of RAM. Stuart Nixon tells us how you can add more cheaply.

"...there's room on the one meg board for another 512K to give a 1.5 Mb RAM system for the cost of a few 120ns chips. Now, I just have to stick 1Mb chips in my Alegra on the 1000, then I can put the ex-Alegra chips in the 2000."

DE-BUG Menu

Amiga's operating system is full of interesting hidden menu's, messages and little tricks. Here's another, courtesy of Dave Thompson.

"...type loadwb -debug then shrink the CLI away, click on the disk icon and press the mouse menu button to reveal the usual menus. Move to the special menu then move to the right and another menu will appear with no title but containing two messages 'debug and flushlib' . . . choosing debug is just a different way to jump into ROM WACK.

Fish Disks Recall

The following message has been posted by Fred Fish, the man behind the famous Public Domain Fish disks. Please pass it on.

URGENT NOTICE

Please give this notice and its contents widest possible distribution. Post to any electronic communications service and BBS on which it does not already exist.

Thank you

Fred Fish

"I have just spoken with Martin Murray, president of Inovatronics, 11311 Stemmons Freeway, Suite 7, Dallas Texas, concerning the contents of disk number 80 in my library of Amiga software.

"It appears that some dastardly individual took a copy of a commercial product of theirs, modified it to remove the copyright messages, and then released this modified version on one of the BBS's that I collected material from in the course of organizing this disk.

"Naturally, we are both VERY concerned about this, and the effect that it might have on the commercial value of their product.

"The programs in question are in the directory "Tools" on disk number 80. I am in the process of attempting to identify the original

source of this modified version, to notify all recipients that this material is to be immediately removed from circulation, and to otherwise take all appropriate steps to reduce any damage caused by this release. I cannot say more at this time. Please help me out via the following steps:

"(1) Notify any individuals or organizations that you know of that have copies of, or redistribute disk 80, to destroy those copies and to stop distribution immediately. I will issue a replacement disk as soon as the dust settles. Anyone who received disk 80 from me should return the original disk for replacement.

"(2) Please send me a postcard with the name, address and phone number of organizations (including user groups) which you know of that redistribute my disks so that I may determine who the mainstream redistributors are, and track possible distribution channels.

"(3) If you are using these tools, please arrange to get a legitimate copy. I believe you can order a copy directly from Inovatronics, and they are interested in finding out how many honest users there are that will now be willing to pay for the product. Call (214) 241-9515.

"Consider this a personal plea from me, please do not rip these people off!"

Fred Fish

The address to mail them to is:
Fred Fish, 1346 W.
10th Place Tempe, Arizona
85281

A>X<E BBS

Strange name, but it's operational for all Melbourne callers.

The number is (03)791 1124. Only 1200 and 2400 BAUD is handled... 300 BAUD is not a welcomed speed judging from the messages introducing the system.

Secret Messages

Controversial as they may be, here's more information and comment on those hidden Workbench messages from Doug Merritt. Rumour has it that the programmers waited for the Kickstart 1.2 ROMS to appear before letting the truth out on the contents of these little comments.

"...apparently the very first leak was in the presence of a CBM person. BTW, there's a rumor going around that there are 4 more secret messages to be found in Preferences. I know what the text of them is supposed to be, but haven't found out how to generate them yet. I did locate the "1 bit wide gadget to the left of the date" that's been mentioned, and it prob-

ably has something to do with these other messages...

"P.S. To you Commodore folks: If you do remove certain of the, uh, less complimentary messages, please don't remove all of them! These little tricks are neat; they give the machine some extra personality. In fact, how about adding new ones on every release?"

More on Hidden Menus

The days that were, brought to you thanks to Eric Salter who writes:-

"Under Workbench 1.2 due to lack of space for the new O/S features such as semaphores and ROM tags in RAM, there are fewer

options in this hidden menu. You can only flushlibs and go debug via 9600 baud terminal on the serial port.

"Once upon a time, you could list DOS system lists to the serial terminal.

"Also, once upon a time, there were embedded comments on programming skills within the kickstart core image placed there by programmers whose egos matched their skill with system level development.

"It is also interesting to note that using various keys such as ctrl/shifts etc while pointing to the window position gadget in Workbench, brings forth tales of woe from the original Los Gatos programming team on the virtues of Commodore Amiga.

"But we already knew that!"

Noisy Fan problems - Why?

Expert fan person, Mike Vanemmerik writes on the problem.

"...this is a common problem. What actually happens is that the rotor of the fan creeps forward and backward on its spindle. It is not the actual rotation that causes the noise. It can be cured in various ways - a wave washer is best. Otherwise, almost any kind of washer will be an improvement.

"Beware of replacing the fan - the replacement may have more noise, and you might find your hair streaming behind your head with certain high capacity fans, pumping needless dust through your internal drive."

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TRAXXION

by J. Mark Hunter

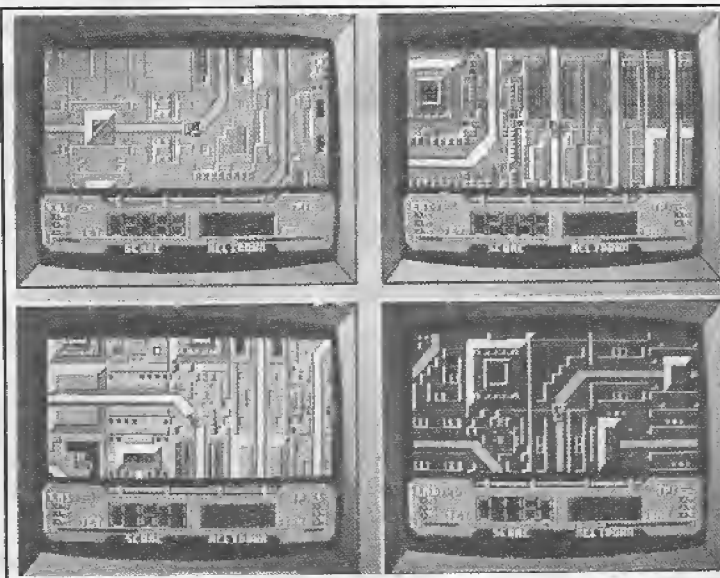
THOUGH THE year is not set, I'd say we're glancing at maybe the late 36th century. We can deduce this by the type of space vehicles we're messing with inside. You see, computer programmers of the games district between 1982 and 1986 were using things like "Servo Class D27" robots and technobiological philosophical Infra Type 3 craft for their hot on-screen performances. This year onwards we've kind of drifted away from all that high calorie material and into what we could call the "Uranusian Shopping Mall

manifestation." Planetary surfaces that look like linoleum mazes where kids and puppies are not safe.

The English are really into faulty reactor type situations. Get the heck outta there before the icecream meltdown, things like that. In *Traxxion*, you control a vehicle attached to a mesh of tracks with many hazards looming, booming ahead, or closer than that. The idea is to find yourself out of the reactor before the providential flare-up and win the game in ways that are substantial enough to solicit admiration from the mass attendance. Sure, sure, I haven't accomplished that yet, but it's a goal.

Yes, find your way to the exit, fast. To engage in such a flee spree you have to negotiate these tracks of crossroads, sliding platforms, points and many other speedbumps. Running off the points or crossroads, hitting obstacles (eg. road-blocks and other cars, both of which can be lasered) or hitting a deadend can be fatal, costing you one of your three craft. Other points of interest to note are the fuel caps, the electrostatic disintegrators and the teleports.

The fuel caps are the tops of the fuel



rods that fuel the reactor. These are exposed for easy refuelling. If these are shot, the time to meltdown will suddenly be increased as there is now less fuel to meltdown. The electrostatic disintegrators are a security system installed to destroy all cars in the vicinity on impact with any object such as your firepower. However, your car has been equipped with a shield to reflect the destructive energy of the electrostatic generators.

The Teleports, once entered by your car, will automatically teleport you to another part of the map.

Graphically, I thought *Traxxion*'s attempts at dazzle fell short of the mark. The prehistoric circuit board they use for the tracks was no more dynamic than the space between the pin stripes on a mortician's suit pants.

Screen instrumentation looked like something out of the Jetson's family wagon. On the bottom panel you see your score and the time to meltdown depicted in large LED numbers. The TP number is the number of the next teleport you must head for. The small cars are the cars you have remaining, the Electro-

Magnetic Inverters (EMI) remaining, the JET temperature and the brake temperature. The last two, on reaching the maximum, stop your car from accelerating and braking respectively until their temperatures are out of the white areas.

When starting out, always travel slowly, to get both the hang of the game and to get acquainted with the map. When approaching certain points in the track, crossroads and sliding sections, always reduce speed (pushing the Z key for brakes). Be very sparing with your EMI's as when these run out you have no

more left for that car.

Watch your brakes and jet counters as, although they rejuvenate with time, these may run out on you just when you need them. When possible, always shoot the Electrostatic Disintegrators and Fuel Caps to get rid of all other cars in the vicinity and to gain extra time respectively.

And if you are heading for home, make the teleports the base to shoot for and the tracks you're pursuing will steer you right.

There're measures of adequacy here, but the two scoops of action and effects are far more generous in other games. Not one of the best but Okay. □

Traxxion

Publisher	CRL
Distributor	OziSoft
Machine	C64
Price	\$29.95
Graphics	64
Sound	60
Music	67
Presentation	55
Documentation	56
Overall	62

OINK!

by J. Mark Grunter

"GIRLS BEFORE swine." Well not in this game. The hog here is taking control.

OINK! . . . "Excuse me, did you say something?" Yeah, just another title for "three action-packed games." And don't let the smell of bacon deceive you - this game is good. A veritable pig-out on fun and fantastic.

Let's take a look inside. But don't be shocked if it's not a pig sty.

Just get interested in the individual recordings of three fine artistic computer game pieces and the revelry of glowing enjoyment herewith consumed.

Game ONE: My favourite. "Pete's Pimple." Here again, the title is nothing. Nobody cares about actual themes anymore - just want the action. ACTION! Pete's Pimple is an *Arkanoid*-type game. Dazzling graphics used here in this sentence relate to the opening screen shot and masterful routine you must traverse to accomplish even the first phase, which is hard and gets tougher still.

With joystick you control the tubular bar at the left hand of the screen. Moving it up and down the job is to deflect a quickly gliding box to various other grid-patterned boxes and with each hit they gradually disappear and set you up for entry into a lettered maze and many more credit points.

This ricocheting manœuvre is a pleasing quest of skill and dexterity...and even though these two words have been used many times before, nothing could be closer to the truth.

At the same time however, oncoming nasties are in hot pursuit from the right

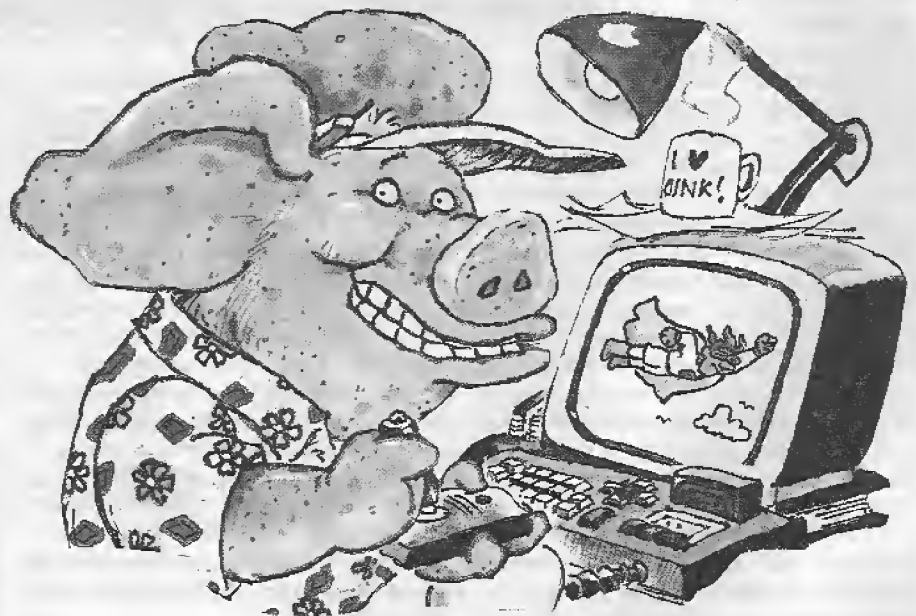
side of the screen. One tap from them and you can bon jovi voyage one man, again and again another. It's exciting, mind-stifling combat.

After all aforementioned blocks are cleared from the screen you progress to the next of twelve different screens.

Then a dude known universally as the Rubbishman is loaded into your nostril cavities and the zone region for this par-

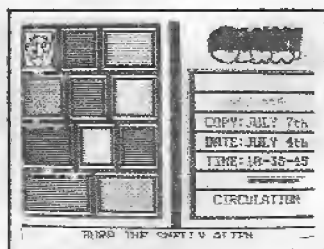
ring him up and down because the distance between the flight path over an obstacle and then swooping down to cruise beneath a bridge is short and requires stealthy control.

There are a number of objects that cannot be flown over and these will cause a loss of life if touched. In general you should fly at ground level, the screen scrolling right to left, as much as possi-



ticular territory is somewhat hostile. The zones are split into two sections. In the first section you must control Rubbishman's altitude with the joystick in order to fly over hazards or under bridges etc. There's a fine line here between manœuv-

ble. There is a power meter presented that diminishes in volume faster and faster according to the height Garbageperson flies. If the meter reaches zero then a life is lost. By hitting the bonus blocks a random amount of power and a random



score is occasionally awarded.

At the end of a zone comes a section where Rubbishman's altitude becomes fixed and the joystick allows him to move forward and backwards as well as up and down. If the joystick is held in its most forward position then the speed of the scroll will increase. A number of objects move at Rubbishman at varying speeds. The boxes cannot be destroyed so must be avoided. Oil barrels can be destroyed and will increase Rubbishman's power. All nasties can be rectified into anonymity.

Eventually, you're going end up visiting Tom Thug. The graphics in this part of the world are dude-infested. Pretty groovy manifestations of brilliance in program design. A Thugmobile with "TOM" license plates moving around the screen destroying advancing vicious little blocks that cover the exits - out, to other screens. Bonus panels are obtained by destroying the bonus blocks. Nasties come in two forms. And they just keep coming. Most you can blast into non-existence, others you can barely just neutralize and make a frantic dash for the exit before the meatloaf hits the propeller.

On entering to a screen there will be a number of zombies...these move around in a random manner and can be shot as aforementioned, but it's the "homing drones" that don't know when to quit. The Thugmobile is in trouble if you don't find clever ways of scampering it off screen and out of the path of post-motion.

All graphics and a major part of the sound is of a good standard. Intimidatingly accurate if you so want, with plenty to do and experiment with. But there's a theme to *OINK* that does not really make incredible sense. It's the ultimate objective transcended from the aura of the three "action-packed adventures."

Apparently, *OINK* is a pig periodical, a magazine with a July 7 deadline. As you progress through the varying levels of

play in each game, along with the accumulated points accredited to you, you line yourself up to fill copy spaces in the different sections of the magazine.

There is a clock that keeps running throughout the game play/console screen. If you lose all of your lives in a sub game the main clock is advanced by a number of hours. Too much and you miss the deadline, better and win - you get more time. It's a really pretty stupid. The three subgames are really all that matter in making the world go round and delve deep enough into your subinterest to keep you off the streets for hours.

OINK judged by the cover looks shabby, low-budget, nowhere. Judged by the finale after the smoked bacon has cleared ...I'm satisfied. It'll get it's fair mileage. □

OINK

Publisher	CRL
Distributor	OziSoft
Machine	C64
Price	\$29.95
Graphics	74
Sound	63
Presentation	66
Documentation	79
Overall	72

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Scenario

A HERO, an alien, a space machine. It's got it all. Escape in a scorpion fighter from an alien outer space station into deep space. (Deep space as opposed to shallow space, i.e. a necessary depression in the surface of the moon which collects the anti-freeze run-off from the radiator of a Sputnik moon buggy and spawns to life the three day duration of octagonically shaped Neptunian tadpole fledglings). Battle continues.

Battle continues through asteroid storms (and it was supposed to be clear and sunny). To a nearby planet this asteroid battle continues, from where, equipped with weaponry and hyperspace units taken from destroyed alien craft, the hero, sets out in search of the secret alien stronghold.

After many battles described here as terrifying, fought throughout the solar system, our hero discovers the location of the alien base and the final conflict is on.

Scrolling left to right, your craft of super power and high maneuverability begins its missionistic journey. It's avid, it's sleek, it's durable.

The particularly mean aliens for your immediate concentration are the bouncing blue baubles that look much like bouncing blue hamburgulars. The charge of their ignoble crusade comes with firing

in rapid and totally accurate precision.

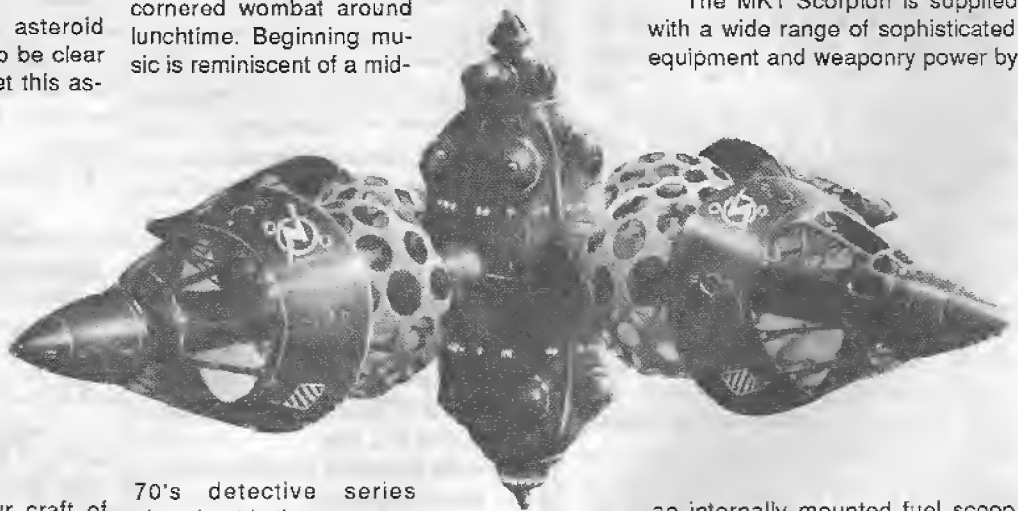
The opening flight path takes you from the runway deck of the mother craft along a space hallway of ceiling and floor destruction obstacles. The quite good graphics include overhanging streetlight kind of chandeliers and lengths of chain-mail.

The sound effects are amazing. On explosion, your craft goes out like a sparkler in a toilet, a frazzle and a frizzle sounding something like a cornered wombat around lunchtime. Beginning music is reminiscent of a mid-

sion on contact. The hamburgulars, although able to glide over them, will tend to concentrate a path over the top in similar fashion to you so I suggest hanging back and waiting for them to tunnel towards you, blasting them on approach. You go pretty nuts here - you've got to fire button your left thumb off to stay alive.

About your ship

The MK1 Scorpion is supplied with a wide range of sophisticated equipment and weaponry power by

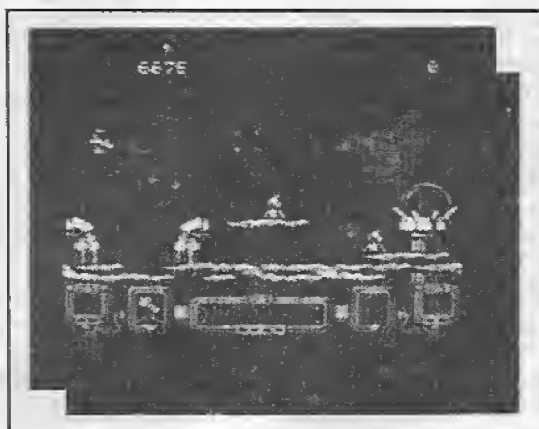


70's detective series played out in the emergency centre of a county hospital. Cool organ play. Only shoot the piano player.

With the hamburgulars in such a volatile happening mood the firing line is particularly obscured. The ground paraphernalia, such as out-cropped piping and glass-domed towers, cause your explo-

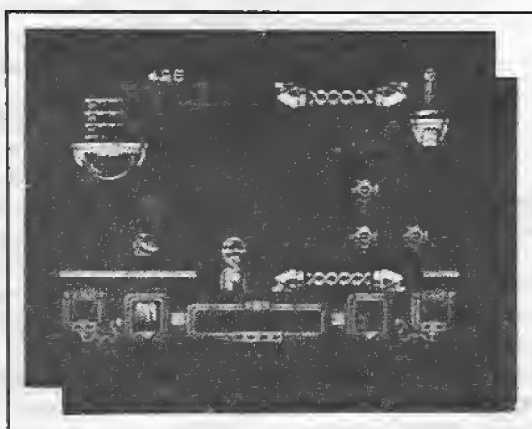
an internally mounted fuel scoop. Propulsion through the main drive units can be operated at four power levels ranging from low power for delicate control in tight spaces, to maximum setting for high speed combat in deep space.

Pulse lasers, top of the hit list when it comes to weaponry, are ideal for heavy



cient fuel to highlight the desired equipment in the Weaponry Activation Indicator, then collect one more piece of fuel with the scoop in Activation mode.

To go into activation mode, hold down the fire button until the ship changes from yellow to blue and keep it depressed while picking up the fuel. The new equipment will be activated, or its power set-



duty alien blasting. These wing mounted lasers also have four power settings. Two independent plasma bomb throwers provide awesome (and that's a quoted adjective) destructive power against ground based targets.

Homing missiles are self-propelled and carry scaled down planet bursting warheads and, once locked onto target will destroy almost any large enemy craft. Then, the biggest in intelligentia arsenals, seeker missiles. Carrying automatic target acquisition circuitry designed to lock onto any target they are able to destroy.

(...Good thing the game is of fair playability because all this talk of destruction and missiles is beginning to irritate me. Take me back to the *Road Runner* please, situated in natural light, outdoor settings and country air.)

The fuel scoop provides the power to activate the Scorpion's main systems. To activate a piece of equipment (weapons, propulsion etc) you must collect suffi-

cient fuel to highlight the desired equipment in the Weaponry Activation Indicator, then collect one more piece of fuel with the scoop in Activation mode.

The opposition in *Zynaps* comes in five danger varieties. Small flying craft can usually be destroyed with one hit from a laser, bomb or seeker missile. Homing-missiles cannot lock on. Dangerous planet-bound defence installations require multiple laser hits or a single bomb or seeker missile to destroy them. Above the ground installations are the alien command ships. They are large flying craft, heavily armed and well protected. These can destroy with multiply laser hits or homing missiles.

Getting away from the technical disasters, there are the natural hazards that arrive to harass you. These consist largely of asteroids and other flying debris. The occasional Oklahoma tumbleweed could cross your path - but don't choke on the chances.

Points are awarded for blasting individual aliens and special bonuses for destroying complete formations of more dangerous aliens. Bonus lives are awarded at 10,000 points and every 20,000 thereafter.

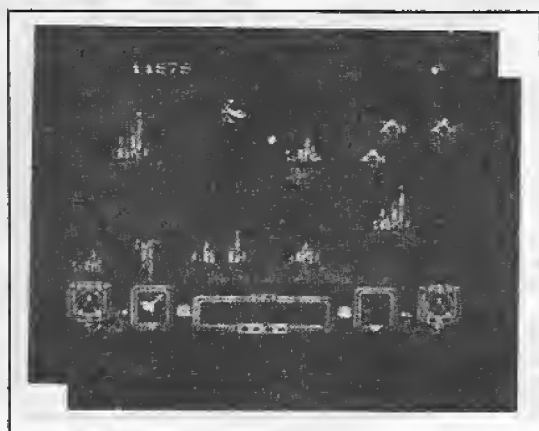
Yes, the queries are endless. And high above an Oxford Street parade is the flight of the *Zynaps*. ...Okay, *Zynapi*. *Zynapi* fighters taking on the aliens in alienated skies. That's a mission, a quest for conquest that is hard to manage without serious ambitions. It could be that such travel is awesomely prevailing but with the right kind of choreography, music and quality graphics you and the tribal eld-

ers of *Zynapi* can do it.

Remember, this is from Hewson Consultants here, and it will be tremor city when they don't get it right. □

Zynaps

Publisher	Hewson
Distributor	Ozisoft
Machines	C64
Price	C \$29.95 D \$39.95
Graphics	84
Sound	79
Music	69
Presentation	82
Documentation	90
Overall	87



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SLAP FIGHT

YOU'RE THE pilot of the Slapfighter and must destroy the alien swarms which confront you . . .

Yes, a Slapfighter this time. There's no end to the magnificence of limitless alien craft appellations. Give me a galaxy and I'll give you a alien war complete with the licence numbers of the accompanying fighter jets. And you can be sure the sleeve will be jamming you with "superb graphics" and "split second timing" stretch marks. It's all here. And what century? . . . wow, I'm impressed! They've laid it on me undated! But by a quick peruse of the dress codes I'd surmise 2430, maybe 32. It's difficult around the early part of the 25th century because there was such a cult following of Buck at that time, you know, really bad. Made Miami Vice fashions look stylish!

We've got a vertically scrolling landscape for a change and I was impressed. Vertical landscape, and what do you do with that? You manoeuvre your slapfighter over it, of course, the landscape of the vertical planet Orac.

And as you progress further into the game the landscape becomes more and more hostile and more enemy life forms group together to attack you. You progress in certain credits to further stages of capabilities and sleeker fighting techniques. Highlighted icons have hidden lasers and shields etc. behind them and add to your menagerie of alien arrest tactics.

This game ain't no slapfight in the face either. It gets there, gets really interesting, somewhere down the track.

You ask me about music and I question the game. Well, have you ever heard the sound of a regiment of the Salvation Army? . . . yea, like too much voltage heading upstream into an electric organ. Perhaps, the sound FX eased down a gear or two from the apathetic similarity to warm into what can be considered 'good' or 'good enough'. The explosions are pleasant, the firefight disturbingly

creative.

Some hitches there though . . . like not being able to speed up the frame. You shove the joystick forward and the space-type vehicle only jams in the top edge of the frame and waits for the following frame blitz.

The ship manoeuvring also is too slow. Much, much. The fire lasers shoot only a short distance and it leaves you scampering in a deathful panic as you realize the guys are still coming!

My advice is to keep moving your man. The attacking discs have a detector or sensory system that somehow picks you up and comes ready for lunch. So twirl and dive a lot and hang more to the right of your screen.

Slapfight works itself up, lathered in sub-hypnotic manipulation and crazes you into delightful sweats of challenging, unhealthy devastation. □

Slapfight

Publisher	Imagine
Distributor	OziSoft
Machines	C 64-128
Price	\$29.95
Graphics	68
Sound	70
Music	72
Presentation	66
Documentation	61
Overall	64

ful and compelling coin up conversion seen." Get back! From tarmac tracks to desert trails *Enduroracer* is what it got cut out to be, a stunning motorbike race pitting you against time and cruel, challenging terrain.

Yaasir, it good! It very good! □

ENDURORACER

JUST GOT in from playing *Enduroracer* and I'm revvin'! All pumped up and enthralled...*Enduroracer* is what I came for and won't leave till the joystick comes off in my hand.

Compelling play as you load up the throttle, wait for the three second countdown and shoulder aside the competition to take the lead and soar out to the front of the pack!

Outrageous! We're cruisin' maybe faster than 200, 300 kilometres an hour, taking corners on the soles of your shoes and poppin' wheelies over every kind of hurdle imaginable! Kills ya!

Popular Computing Weekly described it this way: "Enduro Racer, the most faith-



Enduroracer

Publisher	Activision
Distributor	Imagineering
Machines	C64
Price	\$29.00
Graphics	72
Sound	68
Music	59
Presentation	76
Overall	71

Don't miss out on these great bargains!

Australian Commodore Review Disk Mags Nos 1 to 7

Disk Magazine One

Features:

Forest Raiders - Full machine code shoot 'em up
Machine code paint, border, input and flash routines
Nice Lister - for readable listings on non-Commodore printers.
Recover II - for recovering deleted files,
and a catalog program - for getting a disk directory without losing your program
And More...

Disk Magazine Two

Features:

Programs demonstrating 3D graphic plots
A terminal program called Teleport
A tutorial on bits and bytes
Character editor - for designing your own custom alphabets and graphics
A full demonstration of Electronic Card File
And More...

Disk Magazine Three

Programs:

Hangman	Labyrinth
Calendar	Finance
Typing Practice	Roadblock
Bird Invaders	

Features:

Constructabrix - education and graphic construction program for younger users
And More...

Disk Magazine Four

Special Issue

Featuring:

Graphic Workshop - a complete design system for sprites, graphics, and character sets - with tutorials

Also:

Typing Tutor - a complete typing program
Works on errors, counts your speed
And More...

Disk Magazine Five

Our Biggest seller yet...

Featuring:

Utilities for using Newsroom on an MPS 802 plus printing disk cover with directories, writing signs, printing Doodle and Printshop pictures and more all on the MPS 802!

A demonstration of games in the future

And More...

Disk Magazine Six :

Featuring:

Games:	Home Inventory
Bert the Bug	Graphics:
Hangman	Light Fantastic
Demos:	Utilities:
Amiga Pharoah	1571 Utility
Space Harrier	DIR@828 Disk Filer
Max Headroom	<i>And More...</i>
The Pacer Sade	

Disk Magazine No 7 - double sided, with some 128 software too - Featuring:

Utilities: Anti-Isepic, Sledgehammer, Fast Format, Renumber, PS/PM/NR, PS Printer, Graphics Editor.

Other: Joystick Tester, Irish Jokes, Convertor, Ultimate Writer, Home Finance, Oscilloscope, Dice Roller, Chord Maker, Dark Forest, Don Martin, Funny, Music Classics. **Demonstrations only:** Karate Kid II, Thrust Concert, 3D Demo, No More Heros, Recursion. **For the 128:** Bootmaker 128/64 Utility, Convert Basics utility.

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notch, just as well because I somehow fouled up the procedure (my fault, not *Thinking Cap's*) and the printer definition was deleted but not re-saved with the new preferences. No worries, I was able to check the directories of the front and back of the disk after switching off and back on again and thus located which file was missing from the front side. A simple file copy fixed that and I was back in business. The message once again is: when you need to write to the Master Disk of any program, be sure you've made a backup first.

Other features include Edit facilities with Cut, Paste, Find and Replace. It's possible to Merge a previously saved outline from disk with the outline currently in memory, also you may load and save either the full outline or just a section of it from the Main Menu. *Thinking Cap* supports the use of two drives and I find this a tremendous advantage with all produc-

tivity software.

Overview

I mentioned the Brainstorm mode above but sidetracked myself without going on to talk about Overview. These are the two main modes of *Thinking Cap* and the side arrow (top left of the keyboard) toggles between them.

To expand on one of your ideas or topics you simply place the highlighter on it by using the cursor keys and press the English Pound key to open an Edit Window. Yes, a window! *Thinking Cap* uses windows extensively, with successive feature windows being overlaid on top of the previous window. Simply highlight the Exit command in each window, press Return and you go back to that previous window.

Great stuff, but there's more . . . There's a pop-up* help screen window

which comes up from the bottom of the screen and which shows all the common commands; it's available from virtually anywhere in *Thinking Cap* and is brought up by pressing the Commodore logo key. Release the key and the Help window drops down again. Here's the really clever bit though, Shift/Lock will hold the Help window in the upright position so that your hands are free.

A couple more nice features are the ability to Hide text so that only the headline is displayed (= key toggles this feature) and the asterisk key (*) toggles topic numbers on or off for the screen display.

Another good bit is the "Section Safe" where you can store a topic, subtopic or an entire Section of the outline in a special space in *Thinking Cap's* memory. Section Safe contents stay undisturbed until you need them and when you Cut or

(continued on page 20)

Keep up with Commodore at Maxwell The Commodore Centre

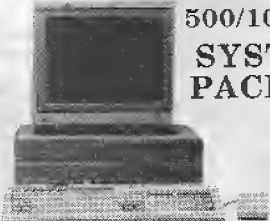
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And some advice here, okay? While gaining experience, do not try to shoot everything in sight, hold back to give yourself room to move and fire and concentrate more on shooting at defences you need to shoot in order to escape. Later on, more complex techniques will be needed to tackle the semi-chaos and chaos worlds, go to two, three . . . further even. Holding the fire key down fast-fires - you won't really need this until later.

On empty worlds stay towards the top of the screen and concentrate on hitting the + and x formations.

Graphically speaking it's pretty decent. The screen display is like a blue and pink metallic honeycomb.

The music reminds me of the Axel Foley theme tunes on a stretched tape. Playability leaves something to be desired as you don't even have to fire and you could swing it over to the far side of the screen and let it go for five minutes, still getting points and not being de-

stroyed.

Yet - it's a change in disaster. You're only picking on asteroid belts this time around, no actual bloodshed, and things remain groovy if you keep your wits and headphones about your head.

I had a pretty good time with *Firetrack* on the whole. □

Firetrack

Publisher	Electric Dreams
Distributor	Imageneering
Machine	C64/128
Price	\$10 cassette \$12 disk
Graphics	74
Sound	63
Presentation	72
Documentation	66
Overall	70

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Uncle Pete's latest Crossword Puzzle

Hello everybody, the crossword competition has been a great success with the first entry reaching me by the 7th September. This is an amazing response considering the magazine was not on sale in Newcastle till a week after that date!

The credit for the fastest response goes to D.J.O'Brien of Grafton N.S.W. A prize goes to that lucky entrant and top marks for promptness.

Either the distribution agency in the north of the state runs ahead of the rest or else our winner has some inside

contacts.

Anyway here is another crossword for you to sharpen up your pencils on.

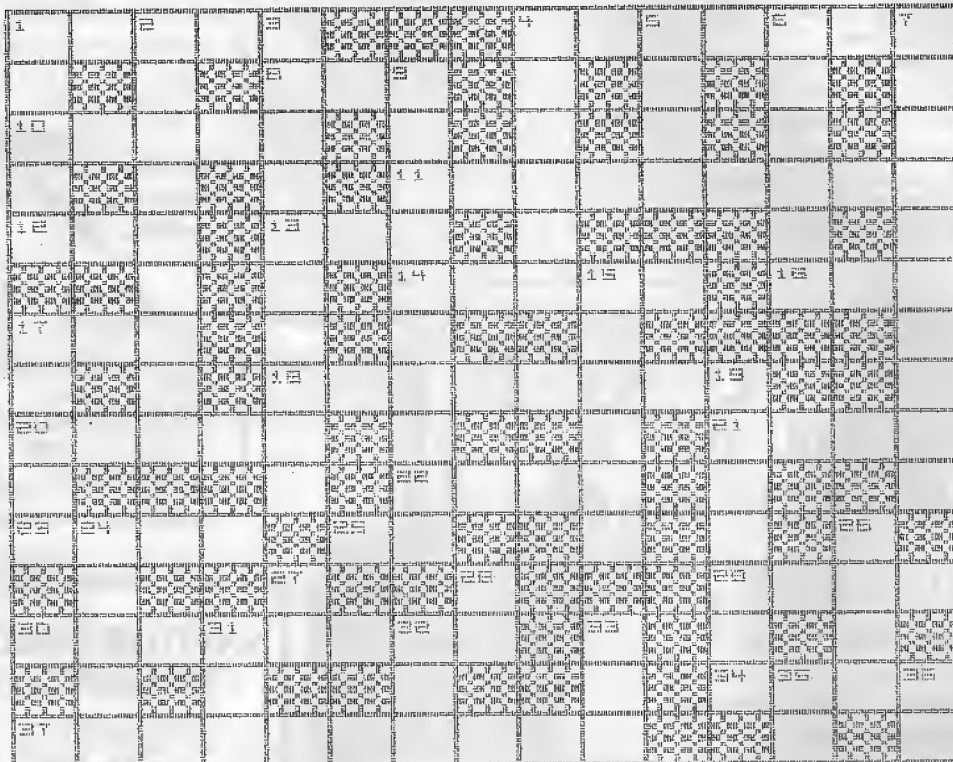
Once again the prize is a disk full (both sides) of Uncle Petes favourite utilities to the first correct entry received after publication.

Send your puzzle or copy to

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N.S.W. 2286



ACROSS CLUES

1. Commodore's latest
4. Happy bouncing chap
8. Disk operating system (inits)
10. Before
11. Cave system
12. Peanut butter maker
13. Times past
14. What creeps when scared
16. Rivers, roads and rail (inits)
17. Japanese dress
18. First of its kind
20. Boring, uninspiring
21. Level and flat
22. Part of foot
23. Revolve
25. Overtime (inits)
29. Cave rescue game
30. French for snails
34. Ready for picking
37. Naughty computer card game

DOWN CLUES

1. Fruity computer
2. Copy of the real thing
3. Spotty young lad of T.V. and 64 game fame
4. Famous doll now computer game
5. Person operating computer system
6. Important daily meal
7. Fish often found in adventures
9. Microprose flight simulator
15. On ones own, unmarried
17. Circular trajectory
19. What Infocom's goddesses wear
24. Turned over and split
26. Snare
27. British Rail (inits)
28. Adams family cousin
31. Cassius Clay's new name
32. Famous cube
33. Belonging to us
35. Same cousin as before
36. For example (inits)

Mini-Office II

by Andrew Farrell

SIX PROGRAMS rolled into one menu driven package! Sounds great. But how well does it work?

Exceedingly well is the answer. The package provides six separate areas. These are :- Wordprocessor, Database, Spreadsheet, Graphics, Communications and Label Maker.

Each is accessed from the main menu displayed once you have booted the disk. Several utilities are also included to enable files from *Mini Office I* to be upgraded to the new format.

Since the package is made up of various smaller programs, it is only really practical in a disk based environment. A cassette version is available, but would no doubt be very cumbersome to use.

Commodore MPS801/803/1000 and Epson compatible printers are fully supported. However, most printers should work without too much drama.

The best part about this package is the level of integration. Also that so many different programs are available from one menu. There isn't a better way of making such a clean sweep of your small business needs.

The documentation is excellent. The largest draw back to many top programs is the lack of simple to follow instructions. *Mini Office II* is an exception. Each section is labelled at the top of the page with the topic that it covers. Large headings make pertinent points easy to spot.

A very useful reference section appears at the back of the manual along with a summary of key commands for the spreadsheet, database, wordprocessor and communications package. Well presented and well written.

Wordprocessor

Simple, yet functional. Not a true WATSIPOP or WYSIWYG wordprocessor, yet there is a useful preview option. Main menu options include Edit, Print, Search and Replace, Save, Load, Merge, Clear, Catalogue and Hardware Options.

Files may be saved in standard ASCII format for transmission via modem to another computer.

Having chosen edit, a header is displayed at the top of the screen. This shows the time, words entered, characters free, and insert mode. The time option is fairly useless as it only displays the time elapsed since entering the wordprocessor.

Screen colours may be changed, although the default are acceptable. A re-defined character set is used which is slightly larger than usual, and incorporates serifs on each letter. This is a pleasant change from the usual look of programs such as *Easyscript*. It also means that special characters may be used to represent carriage returns.

Blocks of text may be copied, deleted, transferred and copied. Most of the commands are two key-presses, accessed by pressing CTRL and the appropriate key. Special features include the ability to display all spaces as a period. Keyboard click, conversion from case to case, estimation of typing speed per minute, and a variety of other unusual functions make this wordprocessor full of surprises.

Text is entered from the centre of the screen outward, with a top and bottom marker denoting your file limits. Some prefer the full screen method, but I found you could soon get used to one or the other.

Print formatting is achieved using embedded commands. A powerful menu also allows you to alter aspects of the entire document. Mail Merges are possible, and there is a command to get multiple files for use when preparing a large document such as book or instruction manual.

Database

More a file manager than a database, this program is ideal for maintaining lists which might normally be stored on card-index. You begin by defining the record structure. Each field may be specified to contain a particular type of information. These include Alpha, Decimal, Integer, Date, and Form. Form fields are used to perform calculations involving other

fields.

Data entered can be searched, sorted, and calculated upon. A range of marked records can be printed horizontally or vertically, with optional usage of field titles. Fields may be printed in part or full.

Spreadsheet & Graphics

Only a small portion of the spreadsheet is displayed, as the top third of the screen contains menu information and prompts. Movement from cell to cell is fast, as is the calculation of any formula. Function keys provide access to the most used commands, whilst two key functions give access to the remainder.

Data may be transferred to the graphics program to produce a variety of graphs. These include pie charts, bar charts, line graphs, and 3D Bar charts.

Communications

For journalists, this part of the package is a real boon. The ability to bash out a page of copy, switch across to the communications mode, and transfer directly into the publisher's computer. The capabilities of the software beyond simple file transmissions are limited.

All the usual protocol changes may be made, along with a variety of BAUD rates, with the exception of split rates such as 1200/75. Most of the more specialised features are for use with a British system called Compunet.

Conclusion

Whilst space does not allow a more complete review of this product, it would be fair to say that to really appreciate *Mini Office II's* practicality, you have to use it. None of the programs are particularly brilliant on their own. All perform well, and there are many unique features.

However, as a suite of programs, integrated and easily accessible, *Mini Office II* would be on my very short list of business software. There are few packages as simple to use, as well documented and yet still powerful as this system.

Distributed by Pacronics (02) 407 0261 □

Track and Sector Spreadsheet

THE *TRACK and Sector Spreadsheet* (T&SS) is a useful program that allows the easy modification of a diskette's contents. I originally began designing it in early 1985, but due to masses of school work programming was constantly delayed. Now, almost two years later, it's finished!

Operation of the program is simpler than it looks. To put it simply, T&SS is divided into three main sections: the Main Menu, the BAM Menu, and the Sector Editor. All three sections operate with similar commands to eliminate having to write them all down. All commands are available from the keyboard and are detailed as follows:

Command:Result

D: To display a disk DIRECTORY
A: Select ANOTHER disk for editing
R: To RENAME the diskette
@: To send a DOS command (explained later)
CTRL/Z: To QUIT the program and return to BASIC
RETURN: To enter the BAM Menu

Note

To obtain a command in similar fashion to eg: CTRL/Z, Press and hold the CTRL Key (top left corner of the keyboard) and Press Z.

BAM Menu

After a brief disk access the BAM (Block Allocation Map) is displayed in a table. The ML routine BAMCODE is responsible for the speed of this display.

In this menu you may move the cursor with the CURSOR KEYS. If you move off the top, bottom, left or right of the table the cursor will wrap-around.

You may select any sector (or BLOCK) and if you wish to edit that sector, press RETURN.

Command: Result

A: Allocate an extra block to the BAM
F: Release, or FREE a block from the BAM
CURSOR KEYS: Move the Sector Select cursor
CTRL/Z: Return to the Main Menu
RETURN: Enter the Sector Editor

Sector Editor

The 'heart' of T&SS is the Sector Editor. Upon selecting a sector in the BAM Menu, another brief disk access is made as the drive reads the contents of that sector before displaying it in another table. This is the work of the ML routine, SECTORCODE. Again, using the CURSOR KEYS, you may move another cursor over each byte of the sector.

The default output is in ASCII although both decimal and hexadecimal output is also available. By moving the cursor over the table, data may be entered into any byte. In ASCII, only one character can be entered at a time, before RETURN is pressed (entering each byte). In decimal and hexadecimal, all input must be in these formats!

Entire strings may also be entered (useful for changing disk names, file names, etc). Activation of this facility will display a cursor prompt (press RETURN to enter your string or abort STRING mode if no data has been entered).

Be especially careful you do not enter a string that will over write data you still require.

Command:Result

CURSOR KEYS: Move Byte Selection cursor
CTRL/Z: Return to the BAM Edit screen
CTRL/X: Display next SECTOR
CTRL/A: Toggle ASCII display
CTRL/D: Toggle DECIMAL display
CTRL/H: Toggle HEXIDECIMAL display
CTRL/L: Enter a STRING of data

RETURN: Enters all data

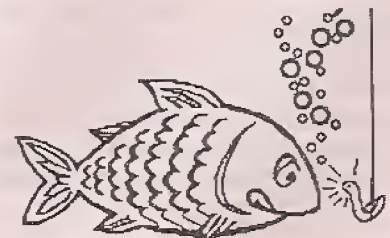
Note

When either CTRL/Z or CTRL/X is selected, you will be asked whether or not you wish to SAVE that sector back to disk. If you do NOT wish to save the data then press either CTRL/Z or CTRL/X again (depending on which command you previously selected). Press RETURN to save the sector. If a disk error occurs (usually because the disk contains a write protect tab) check the disk drive and answer the prompt.

T&SS contains many bullet-proof routines to minimise the risk of permanent disk damage, including Compute's Fool-Proof Input Routine, so it is unlikely that anything will go wrong. However T&SS possesses the power to irretrievably damage data on your disk.

Always make a copy of the disk before editing, especially on your trial run . . . This will enable you to use the editor without the fear of ruining an important disk! You have been warned! □

**This program appears
on Disk Magazine
Number Eight!
See advertisement on
page 37 of this issue.*



Loan Interest and Repayment Calculator

CONSIDERING TAKING out a loan? Well this handy little program will work out how long it will take you to pay off and how much interest you will have paid. If you have a printer it will even print out a small table containing these results.

To start with the program will ask you how much money you have borrowed, or if you like how much you plan to borrow. Enter an amount without using a dollar sign and press return. Next the interest rate will be asked for. Enter the current interest rate for the loan you have taken out, or wish to take out, without using a % symbol and again press return. Finally

you will be asked what monthly payment you will be making, or plan to be making. Enter an amount without using a dollar sign and press return again. Now you've done your job the computer will do its.

In a few seconds a loan report will appear on the screen. It will display all of the information you entered and also the length of time the loan will take to pay off, the total amount you will have paid and also the total interest. If you would like a printout of this screen prepare your printer and press return, otherwise press space and have another go.

If you entered ridiculous amounts of

money at the start you may not get a table of results because the loan may not ever be paid off. For example, if \$100,000 was borrowed at an interest rate of 16% and \$500 was paid every month the loan would never be totally paid off, so you could leave your computer sitting there for 10 years (assuming there were no power failures) trying to work it out and it would never get a result.

*This program calculates interest on a monthly basis and rounds off the time taken to pay off the loan to the nearest month.

(continued on page 38)

NEW — Australian Commodore Review Disk Magazine No 8!

Utilities

Track and Sector — modify disks, find secret words, and modify programs directly using this brilliant utility. Every true hacker needs one.

Function Keys — how would you like 128 function keys on your Commodore 64. This program does it all.

Unscratched — did you actually erase a file lately? If so you need this nifty utility to bring it back.

Relocatable directory — if you need to see what's on a disk without losing your basic program use this little beauty. Specially written to sit anywhere in memory.

Tape Rename — if you need to rename a tape program without the hassle of loading and saving it, this is the answer. See article in this issue.

Games

A super special for issue 8. A complete machine language arcade type game. Excellent graphics and sound.

Home/Business

Calendars — need to find out a special date in the past and the future? This program will calculate the exact date and day.

Chequewriter — for a professional finish to your cheques why not print them out.

Screen clock — if you need to keep track of the time whilst you're programming this program displays the date and time at the top of the screen. Remains running even as you type.

Graphics

ESCOS version 2.99 — produce your own full screen pictures made by joining 112 separate sprites. A programming marvel!

Newsroom Camera

Clear Screen

Demos

Enterprise II

Eddie Murphy

Future Writer — Send musical letters to your friends using the program the experts use.

This is the one that programmers use to pass on special messages to each other.

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Programming

```

10 REM-----
20 REM      LOAN CALCULATOR
30 REM      BY DARREN BROWN
40 REM      12/AUG/87
50 REM-----
60 PRINT"☐"
70 INPUT"HOW MUCH MONEY BORROWED";A
80 INPUT"INTEREST RATE";B
90 INPUT"PAID BACK PER MONTH";C
100 P=A
110 FOR Z=1 TO 12
120 X=B/1200*P+P-C
130 P=X
140 IF X<=0 THEN GOTO 180
150 NEXT Z
160 IF X>0 THEN YEARS=YEARS +1
170 IF X>0 THEN GOTO 110
180 F=Z
190 IF Z=12 THEN YEARS=YEARS + 1
200 IF Z=12 THEN F=0
210 PRINT"☐"
220 PRINT"      LOAN REPORT"
230 PRINT:PRINT:PRINT"-----"
240 PRINT"AMOUNT BORROWED      :  $ ";A:PRINT
250 PRINT"INTEREST RATE        :      ";B;"%":PRINT
260 PRINT"REPAID PER MONTH      :  $ ";C
270 PRINT:PRINT"-----":PRINT
280 PRINT"TIME TO PAY OFF LOAN :      ";YEARS;"YEARS"
290 PRINT"                        ";F;"MONTHS":PRINT
300 TA=(C*YEARS*12)+(C*F)+X
310 TB=INT(TA)
320 PRINT"TOTAL AMOUNT PAID      :  $ ";TB:PRINT
330 PRINT"INTEREST PAID            :  $ ";TB-A
340 PRINT:PRINT:PRINT"-----"
350 PRINT"PRESS SPACE BAR TO CONTINUE"
360 PRINT"OR RETURN TO PRINT"
370 GET A$:IF A$="" THEN GOTO 370
380 IF A$=" " THEN RUN
390 IF A$=CHR$(13) THEN GOSUB 410
400 GOTO 370
410 OPEN1,4
420 PRINT#1,"      LOAN REPORT"
430 PRINT#1:PRINT#1,"-----"
440 PRINT#1,"AMOUNT BORROWED      :  $ ";A:PRINT#1
450 PRINT#1,"INTEREST RATE        :      ";B;"%":PRINT#1
460 PRINT#1,"REPAID PER MONTH      :  $ ";C
470 PRINT#1:PRINT#1,"-----":PRINT#1
480 PRINT#1,"TIME TO PAY OFF LOAN :      ";YEARS;"YEARS"
490 PRINT#1,"                        ";F;"MONTHS":PRINT#1
500 PRINT#1,"TOTAL AMOUNT PAID      :  $ ";TB:PRINT#1
510 PRINT#1,"INTEREST PAID            :  $ ";TB-A
520 PRINT#1:PRINT#1,"-----"
530 CLOSE1
540 RETURN

```

LOAN REPORT

```

AMOUNT BORROWED      :  $ 45000
INTEREST RATE        :      16.5 %
REPAID PER MONTH     :  $ 1200

```

```

TIME TO PAY OFF LOAN :      4 YEARS
                        6 MONTHS
TOTAL AMOUNT PAID    :  $ 63698
INTEREST PAID        :  $ 18698

```

LOAN REPORT

```

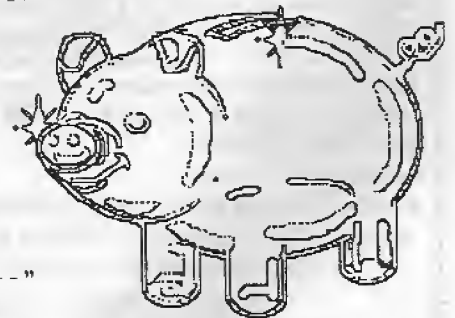
AMOUNT BORROWED      :  $ 45000
INTEREST RATE        :      16.5 %
REPAID PER MONTH     :  $ 900

```

```

TIME TO PAY OFF LOAN :      7 YEARS
                        2 MONTHS
TOTAL AMOUNT PAID    :  $ 76656
INTEREST PAID        :  $ 31656

```



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Following the success of our special disk offer, we have decided to provide a new service to readers of *Australian Commodore Review*. Each month we will publish an up to date listing of our catalog. There will also be a more detailed listing of what is on one particular disk. You will be able to order any four disks for \$30.00 - that's including package and posting. Simply fill in the order numbers of the disks you want, and enclose a cheque or money order for thirty dollars made payable to Saturday Computer Services. Send to Public Domain Software, 19A Frederick St, Putney, 2112. Your order will be dispatched the same week we receive it.

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English	EB	Science	SB
English	EC	Science	SC
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Sprite Clock

by Andrew Baines

*Ever wanted to know what the time is while programming your trusty '64?
This program will tell you what the time is without losing time through disk operations and it
won't cover up any of your already crammed screen!*

THE MAJOR part of the program puts sprites in the border, but this was written by Andrew Farrell, and so I won't explain it (another good reason is that once I work out what's happening, I forget within five minutes because it's so complex). The part we will look at is the clock itself. Within the I/O chips of the '64 (6526) there are two clocks (one in each chip). We are going to use the clock in the second of these chips. The only thing that must be done to keep it running is to read the tenth of a second location.

All of the locations use Binary Coded Decimal, so we can calculate what goes into the sprite pointers more easily. Binary Coded Decimal (BCD) divides the eight bits of a location into two halves. Then the first half holds a digit of a number (from zero to nine) and the second half holds a digit from zero to nine. This is a bit limiting because there can only be numbers from zero to ninety nine, but for our purposes, this is of great benefit as it saves a lot of time.

50 point = 200 ; This is the pointer to the sprites.

60 hour = \$dd0b ; Time of day clock hour and am/pm flag (we ignore am & pm because there aren't enough sprites to allow for it).

70 min = \$dd0a ; Minute location.

80 second = \$dd09 ; Second location.

90 tenth = \$dd08 ; Tenth of a second location.

1500 clock JSR setup ; Sets up sprites. I won't explain this part.

1510 LDA tenth ; Load the Accumulator with the tenth register. Even though we don't actually use this register for lack of sprites, we have to read it to make the

clock run.

1520 LDA hour ; Load the Accumulator with the hour location.

1525 TAX ; Transfer the contents of the Accumulator to the X register.

1530 AND #\$10 ; Logical AND with the Accumulator and the value after the command. This 'chops off' all but the part we're interested in.

1540 JSR first ; There are two extra routines used in this section. They calculate the correct number to go in the sprite pointer.

1550 CMP #point ; Compare the Accumulator with the value point. This checks to see if the time is more than 9 o'clock.

1560 BNE skip ; If its not: ie the time is from ten to twelve, go to skip.

1573 LDA #254 ; If the first digit is zero (the time is nine or less) Load the Accumulator with the value 254.

1574 STA 53269 ; Store the Accumulator in the location 53269. This turns off the first sprite, since it is unnecessary.

1577 BCC skip2 ; Branch on Carry Clear to skip2.

1578 skip STA \$07f8 ; Store the Accumulator in sprite 0's pointer. This only happens if the Accumulator holds one.

1579 lda #255 ; Since we wish to display all the sprites, we Load the Accumulator with the value (#) 255.

1580 STA 53269 ; And Store the Accumulator in the location 53269.

1582 skip2 TXA ; A bit further up, we Transferred the Accumulator to X. Now we are going to Transfer the X register to the Accumulator. This is because when

we calculate the first digit, we destroy the second digit. So we simply save it in the X register.

1590 JSR last ; Calculate the last number.

1600 STA \$07f9 ; Store the result in sprite 1's pointer. Now the hour is on the screen, we'll put a colon in the next position.

1610 LDA #point-1 ; Load the Accumulator with the value point-1 = 200-1 = 199.

1620 STA \$07fa ; Store the Accumulator in Sprite 2's pointer.

1630 LDA min ; Minutes. Load the Accumulator with the Time of Day clock's minute location.

1640 TAX ; Save it for future use.

1650 JSR first ; Calculate the first digit,

1660 STA \$07fb ; Store the Accumulator in Sprite 3's pointer.

1670 TXA ; Restore the old value,

1680 JSR last ; Calculate the last digit,

1690 STA \$07fc ; And Store it in Sprite 4's pointer. That's the minutes done.

1700 LDA #point-2 ; Load the Accumulator with the value point-2 = 200-2 = 198. The sprite at page 198 is a full stop.

1710 STA \$07fd ; Store the Accumulator in Sprite 5's pointer.

1720 LDA second ; Last but not least, the seconds.

1730 TAX ; Save for later on.

1740 JSR first ; Calculate the first digit's value.

1750 STA \$07fe ; Store it in Sprite 6's pointer.

Programming

1760 TXA ; Get the old value back,
 1770 JSR last ; Calculate the last value,
 1780 STA \$07ff ; STore it in Sprite 7's pointer.
 1790 RTS ; All done - the time is on the screen. ReTurn to caller.
 1800 first LSR ; This is where we calculate the first digit. The first digit is in the left four bits of the accumulator. So we do four Logical Shift Rights to put it in the first nybble of the accumulator,
 1810 LSR
 1820 LSR
 1830 LSR
 1840 CLC ; CLear the Carry flag ready for an addition,
 1850 ADC #point ; And ADD point (200) to the accumulator, making the accumulator point to the correct sprite to display.
 1860 RTS ; ReTurn from Subroutine.
 1900 last AND #\$0f ; The last digit is easy to calculate. First we chop off the all but the nybble we're interested in,
 1920 ADC #point ; ADD the pointer,
 1930 RTS ; And ReTurn, with the Accumulator holding the page of the correct sprite data to display.
 2000 *= 50000 ; Assemble at 50000
 2010 JMP set ; Bypass new settings
 2020 shour .byt 0 ; new hour
 2030 smin .byt 0 ; new minute
 2040 ssec .byt 0 ; new second settings
 2050 set LDA #\$80 ; These three instructions
 2060 ORA \$dd0e ; make sure the clock
 2070 STA \$dd0e ; runs at the correct speed.
 2080 LDA #\$7f ; Make sure that the
 2090 AND \$dd0f ; clock is running,
 2100 STA \$dd0f ; not the alarm.
 2110 LDA shour ; Load the Accumulator with the new hour setting.
 2120 JSR conv ; Convert it to BCD.
 2130 STA hour ; STore the Accumulator in the TOD clock's hour location.

2140 LDA smin ; Load the Accumulator with the new minute setting.
 2150 JSR conv ; Convert.
 2160 STA min ; STore.
 2170 LDA ssec ; Second.
 2180 JSR conv ; Convert.
 2190 STA second ; STore.
 2200 LDA #0 ; Set the tenth of a second location
 2210 STA tenth
 2220 RTS ; And exit.
 2400 conv LDY #\$ff ; This routine converts normal numbers to Binary Coded Decimal. Load the Y register with the value \$FF.
 2410 SEC ; SEt the Carry flag.
 2420 loop2 INY ; INcrement the Y register.
 2430 SBC #\$0A ; SuBtract \$0A from the Accumulator.
 2440 BCS loop2 ; If the Carry flag is still set, Branch to loop2. 2450 ADC #\$0A ; ADd with Carry, \$0A.
 2460 STA buffer ; STore the Accumulator in the location labelled buffer.
 2470 TYA ; Transfer the contents of the Y register to the Accumulator.
 2480 ASL ; Arithmetic Shift Left.
 2490 ASL ; Four times.
 2500 ASL
 2510 ASL
 2520 ORA buffer ; Logical OR with the Accumulator.
 2540 RTS ; ReTurn from Subroutine.
 2550 buffer .byt 0

This routine subtracts 10 from the value in the accumulator until there is less than ten in the accumulator. It counts how many tens there are in the Y register. The accumulator and the Y register are then combined in the last instructions to give the BCD format required. □

```
10 i=12672
20 read a:if a=256 then 40
30 poke i,a:i=i+1:c=c+a:goto 20
40 if c<>44263thenprint"error in data lines":end
90 a=12672:b=13441
100 ah=int(a/256):al=a-ah*256
110 bh=int(b/256):bl=b-bh*256
120 open15,8,15,"i0"
130 open3,8,1,"@0:sprite clock.s,p,w"
140 poke157,128:poke251,al:poke252,ah
150 poke780,251:poke781,bl:poke782,bh
160 sys65496:close3:close15
12672 data 0,0,0,0,0,0,0,0
12680 data 0,0,0,0,0,0,0,0
12688 data 0,0,0,0,0,0,0,0
12696 data 0,0,0,0,0,0,0,0
12704 data 0,0,0,0,0,0,0,0
12712 data 0,0,0,0,0,0,56,0
12720 data 0,56,0,0,56,0,0,0
12728 data 0,0,0,0,0,0,0,0
12736 data 0,0,0,0,0,0,0,0
12744 data 0,0,0,0,0,0,0,0
12752 data 0,0,0,56,0,0,56,0
12760 data 0,56,0,0,0,0,0,56
12768 data 0,0,56,0,0,56,0,0
12776 data 0,0,0,0,0,0,0,0
12784 data 0,0,0,0,0,0,0,0
12792 data 0,0,0,0,0,0,0,0
12800 data 0,0,0,0,0,0,0,0
12808 data 0,0,255,0,3,255,192,3
12816 data 255,192,7,129,224,7,0,224
12824 data 7,0,224,7,0,224,7,0
12832 data 224,7,0,224,7,0,224,7
12840 data 0,224,7,129,224,3,255,192
12848 data 3,255,192,0,255,0,0,0
12856 data 0,0,0,0,0,0,0,0
12864 data 0,0,0,0,0,0,0,0
12872 data 0,0,60,0,0,124,0,0
12880 data 124,0,0,124,0,0,28,0
12888 data 0,28,0,0,28,0,0,28
12896 data 0,0,28,0,0,28,0,0
12904 data 28,0,0,28,0,0,127,0
12912 data 0,127,0,0,127,0,0,0
12920 data 0,0,0,0,0,0,0,0
12928 data 0,0,0,0,0,0,0,0
12936 data 0,0,255,0,3,255,192,7
12944 data 255,224,7,129,224,0,1,224
12952 data 0,1,224,0,7,192,0,15
12960 data 128,0,62,0,0,248,0,1
12968 data 240,0,7,192,0,7,255,224
12976 data 7,255,224,7,255,224,0,0
12984 data 0,0,0,0,0,0,0,0
12992 data 0,0,0,0,0,0,0,0
13000 data 0,0,255,0,3,255,192,7
13008 data 255,224,7,129,224,0,1,224
13016 data 0,7,224,0,63,192,0,63
```

Programming

```

13024 data 128,0,63,192,0,7,224,0
13032 data 1,224,7,129,224,7,255,224
13040 data 3,255,192,0,255,0,0,0
13048 data 0,0,0,0,0,0,0,0
13056 data 0,0,0,0,0,0,0,0
13064 data 0,0,7,128,0,15,128,0
13072 data 31,128,0,63,128,0,127,128
13080 data 0,247,128,1,231,128,3,199
13088 data 128,7,135,128,7,255,224,7
13096 data 255,224,7,255,224,0,7,128
13104 data 0,7,128,0,7,128,0,0
13112 data 0,0,0,0,0,0,0,0
13120 data 0,0,0,0,0,0,0,0
13128 data 0,7,255,224,7,255,224,7
13136 data 255,224,7,128,0,7,128,0
13144 data 7,255,128,7,255,192,7,255
13152 data 224,0,3,224,0,1,224,0
13160 data 1,224,7,129,224,7,255,224
13168 data 3,255,192,0,255,0,0,0
13176 data 0,0,0,0,0,0,0,0
13184 data 0,0,0,0,0,0,0,0
13192 data 0,0,255,0,3,255,192,7
13200 data 255,224,7,193,224,7,128,0
13208 data 7,192,0,7,255,128,7,255
13216 data 192,7,255,224,7,193,224,7
13224 data 128,224,7,193,224,7,255,224
13232 data 3,255,192,0,255,0,0,0
13240 data 0,0,0,0,0,0,0,0
13248 data 0,0,0,0,0,0,0,0
13256 data 0,3,255,224,7,255,224,3
13264 data 255,224,0,3,224,0,7,192
13272 data 0,15,128,0,31,0,0,62
13280 data 0,0,60,0,0,60,0,0
13288 data 60,0,0,60,0,0,60,0
13296 data 0,60,0,0,24,0,0,0
13304 data 0,0,0,0,0,0,0,0
13312 data 0,0,0,0,0,0,0,0
13320 data 0,0,255,0,3,255,192,3
13328 data 255,192,7,129,224,7,0,224
13336 data 7,129,224,3,255,192,1,255
13344 data 128,3,255,192,7,129,224,7
13352 data 0,224,7,129,224,3,255,192
13360 data 3,255,192,0,255,0,0,0
13368 data 0,0,0,0,0,0,0,0
13376 data 0,0,0,0,0,0,0,0
13384 data 0,0,255,0,3,255,192,3
13392 data 255,192,7,129,224,7,0,224
13400 data 7,129,224,7,255,224,3,255
13408 data 224,1,255,224,0,1,224,0
13416 data 0,224,7,129,224,3,255,192
13424 data 3,255,192,0,255,0,0,0
13432 data 0,0,0,0,0,0,0,0
13440 data 255,256

```

ready.

```

10 i=49408
20 read a:if a=256 then 40
30 poke i,a:i=i+1:c=c+a:goto 20
40 if c<>52143 then print "error in data lin
es less than 50000":end
50 i=50000:c=0
60 read a:if a=256 then 80
70 poke i,a:i=i+1:c=c+a:goto 60
80 if c<>9128 then print "error in data line
s more than 50000":end
90 a=49408:b=50080
100 ah=int(a/256):al=a-ah*256
110 bh=int(b/256):bl=b-bh*256
120 open15,8,15,"io"
130 open3,8,1,"90:sprite clock.c,p,w"
140 poke157,128:poke251,al:poke252,ah
150 poke780,251:poke781,bl:poke782,bh
160 sys65496:close3:close15
49408 data 76,8,193,220,0,0,49,234
49416 data 32,58,193,162,0,160,0,169
49424 data 100,141,3,193,169,5,157,39
49432 data 208,173,3,193,24,105,15,141
49440 data 3,193,153,0,208,169,0,153
49448 data 1,208,232,200,200,192,16,144
49456 data 227,141,16,208,169,255,141,21
49464 data 208,96,120,169,127,141,13,220
49472 data 173,20,3,141,6,193,173,21
49480 data 3,141,7,193,169,129,141,20
49488 data 3,169,193,141,21,3,169,27
49496 data 141,17,208,169,250,141,18,208
49504 data 169,1,141,25,208,141,26,208
49512 data 173,11,221,141,11,221,173,10
49520 data 221,141,10,221,173,9,221,141
49528 data 9,221,169,0,141,8,221,88
49536 data 96,173,25,208,41,1,240,249
49544 data 141,25,208,169,129,141,17,208
49552 data 173,5,193,141,32,208,141,33
49560 data 208,32,164,193,169,250,141,18
49568 data 208,108,6,193,162,0,173,5
49576 data 193,141,33,208,141,33,208,141
49584 data 33,208,141,33,208,141,33,208
49592 data 141,33,208,141,33,208,141,33
49600 data 208,141,33,208,141,32,208,202
49608 data 16,220,32,220,193,169,27,141
49616 data 17,208,173,5,193,141,33,208
49624 data 141,32,208,96,32,11,193,173
49632 data 8,221,173,11,221,170,41,16
49640 data 32,51,194,201,200,208,8,169
49648 data 254,141,21,208,24,144,8,141
49656 data 248,7,169,255,141,21,208,138
49664 data 32,59,194,141,249,7,169,199
49672 data 141,250,7,173,10,221,170,32
49680 data 51,194,141,251,7,138,32,59
49688 data 194,141,252,7,169,198,141,253
49696 data 7,173,9,221,170,32,51,194
49704 data 141,254,7,138,32,59,194,141
49712 data 255,7,96,74,74,74,74,24

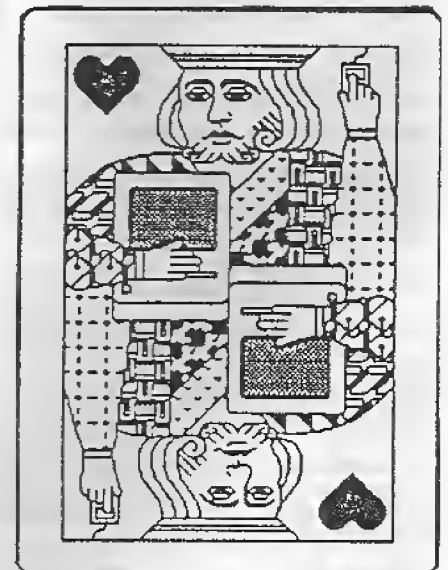
```

```

49720 data 105,200,96,41,15,24,105,200
49728 data 96,76,71,194,0,0,0,169
49736 data 128,13,14,221,141,14,221,169
49744 data 127,45,15,221,141,15,221,173
49752 data 68,194,32,120,194,141,11,221
49760 data 173,69,194,32,120,194,141,10
49768 data 221,173,70,194,32,120,194,141
49776 data 9,221,169,0,141,8,221,96
49784 data 160,255,56,200,233,10,176,251
49792 data 105,10,141,142,194,152,10,10
49800 data 10,10,13,142,194,96,0,16
49808 data 223,32,93,196,76,94,194,94
49816 data 94,94,157,248,7,189,16,192
49824 data 41,10,24,105,200,153,249,7
49832 data 232,136,136,232,224,6,208,226
49840 data 76,94,194,256
50000 data 76,86,195,6,50,45,169,128
50008 data 13,14,221,141,14,221,169,127
50016 data 45,15,221,141,15,221,173,83
50024 data 195,32,135,195,141,11,221,173
50032 data 84,195,32,135,195,141,10,221
50040 data 173,85,195,32,135,195,141,9
50048 data 221,169,0,141,8,221,96,160
50056 data 255,56,200,233,10,176,251,105
50064 data 10,141,157,195,152,10,10,10
50072 data 10,13,157,195,96,256

```

ready.



Machine Code Tutorial

Part II

This month, Andrew Baines looks at the X and Y registers and hexadecimal.

Hexadecimal is one of the hardest parts of machine code to grasp, so we'll tackle it straight away, no mucking around.

Remember the days before you bought your '64 (not many would)? Remember people telling you that computers are based on binary (a number system based on the digits one and zero), with a whole lot of little switches madly blinking on and off?

Remember the joy when you bought one and found out that they were much easier than all that? Well get set for a shock, because the '64, along with all other computers, is based on binary. Yes, just think of all those long meaningless strings of 1's and 0's. Exciting, isn't it.

There is, however, one way out. It is called hexadecimal - the only way man can possibly make some sense out of computers - especially the '64 - its memory map is a hazard of bits that do "gee whiz" things, but they are all so hard to get to.

Hexadecimal was briefly talked about in the August issue, and oh how brief it was. We might as well start from the beginning - decimal. Remember the days of your schooling, and listening to your maths teacher rave on about number systems and bases? "We use the decimal system because we have ten fingers." The whole class waited impatiently to get out. If you don't remember, don't worry, you'll pick it up.

Decimal is the base ten number system. Binary is the base two number system.

The two we are concerned about are binary and hexadecimal. Hexadecimal is based on a sixteen number system and uses the digits 0 through 9 and the letters A to F. Of course you did! You read the August issue!

Question - How much memory does

your '64 have? Answer - 64k. If we write this in binary we would come up with 11111111 11111111. And in hex - \$Ffff. Much more readable. And what's more, the first four 1's are represented by the first F and the second four 1's by the second F. Even better.

But this still isn't much cause for out-dating the perfectly usable decimal that we've all grown to know and love - or is it?

Remember when you were colouring in your hi-res screens and the manual stared up at you wanting two numbers in one memory location? (big day for "remember", isn't it?) Well, hex is your answer. Simply use one digit for each colour. Much better.

But how do I convert decimal to hex and back? You shouldn't have to. You should be able to operate in one OR the other. Not both at once. But we'll have a look anyway, in case of an emergency.

\$D020 is the border colour register. The first digit is worth $4096 \times D$. So what is D worth? 13. So we have 53248 . But that isn't the border colour location! Hang on, we haven't finished yet.

The second digit is worth 256. $256 \times 0 = 0$. Okay, on to the third digit. Its worth 16×2 . So we say $16 \times 2 = 32$. The last digit is worth exactly what it says its worth - face value.

The final sum is $53248 + 0 + 32 + 0 = 53280$.

Correct! Another example. \$AF08 is the routine that gives a syntax error.

$$A \times 4096 = 10 \times 4096 = 40960$$

$$F \times 256 = 15 \times 256 = 3840$$

$$0 \times 16 = 0 \times 16 = 0$$

$$8 \times 1 = 8 \times 1 = 8$$

$$\text{TOTAL } 44808$$

Most good monitors have this feature built in, and will also give ASCII character and binary equivalents.

Along with the accumulator, 65XX

processors have two other registers, the X and Y registers. These can perform the Load and Store that the Accumulator can, except that the syntax for these commands is X = Load X (LDX), Store X (STX); Y = Load Y (LDY), Store Y (STY). The X and Y registers cannot perform mathematical functions. However, some instructions are exclusive to the X and Y registers, making them extremely useful. These are the INcrement X (INX) and INcrement Y (INY), which increase the values held in the X and Y registers by one, the DEcrement X (DEX) and DEcrement Y (DEY) which decrease the values held in the X and Y registers by one and the ComPare X (CPX) and ComPare Y (CPY) instructions which compare the X and Y registers with the memory location or value after the instruction. All of these will be explained later by example.

The main instructions we will look at today make use of the X and Y register's indexing capabilities.

There are three types of indexing instructions available on the 65XX series. The first two are called indirect addressing, and are implemented differently with the X and Y registers. We will leave them to later. The third is called absolutely indexed and is the one we will look at today.

Example: You wish to find the ninth element of a table at location \$8BC0. So you would first Load X with the value 9.

LDX #9

Next, you would Load the Accumulator with \$8BC0 absolutely indexed with X.

LDA \$8BC0,X

Normally, the comma and the X would not be there and the accumulator would be Loaded with what is in the location \$8BC0. But there is an X after the instruction, so the 65XX looks at the contents of the X register and ADDS IT TO THE ADDRESS AFTER THE LOAD INSTRUCTION, in this case \$8BC0. It then Loads the Accumulator with the contents of $\$8BC0 + X$. In this example, X contains 9. So the value Loaded into the Ac-

cumulator would come from memory location \$8BC9.

Another example. This time we'll output a message to the screen. If you don't understand all of the program yet, don't worry, you will later.

```
LDX #$00
```

```
Load X with the value (#) zero.
```

```
LOOP LDA SCREEN,X
```

This instruction seems very complex, but it is really simple. Later we will be coming back to this instruction. Because our assembler needs a reference point, we put the label 'LOOP' in front of the line. Please note that if you are using a line assembler this will not work. The next thing out of the ordinary is the label 'SCREEN.' If you look a bit further on you will see this label in front of the characters that will eventually be printed to the screen.

So what is happening is that the Accumulator is being Loaded with a character in memory location SCREEN + X.

```
JSR $FFD2
```

Remember JSR from last issue? This instruction calls the Kernal's output a character to the current device routine. Since the current device is the screen (the default) the characters will find themselves on the screen. Now that we have Loaded the Accumulator with a character from SCREEN + X and printed it on the

screen, we are ready to do this again until all the characters are on the screen. This is where the other new instructions come in.

```
INX
```

Increment the X register or add one to it. If the X register holds the value 255 and an INX is executed, the X register will hold the value 0.

```
CPX #25
```

Compare the X register with the value (#) 25.

```
BNE LOOP
```

```
Branch if Not Equal to LOOP.
```

Two new instructions! 65XX processors have seven flags and these two instructions make use of one of them. That flag is the zero flag.

The zero flag will be set if any register is Loaded with the value zero. It is also set if the result of a Compare is true. So if we Compare X with the value 25, the zero flag would do one of two things: If X has 25 inside it, the flag will be set.

If X is not 25, the flag will be cleared.

So we now test the zero flag by saying Branch if Not Equal to zero or previous compare. Branch to where? To LOOP. These two instructions are just like an IF-GOTO statement in BASIC: IF X < 25 GOTO LOOP. Return from Subroutine. Go back to BASIC.

```
SCREEN.ASC "ABSOLUTE INDEX-
```

ING IS EASY"

```
.BYT 13
```

This is the table of characters that will be printed to the screen. The 13 represents a return, to make sure that the cursor is on the next line when the RTS is encountered.

Let's take another look at our program.

First, we Load X with zero. Next we Load the Accumulator with SCREEN + X. At the moment X is zero, so the Accumulator was Loaded with the value in SCREEN + 0.

Now we output the character in the Accumulator to the screen by calling the CHROUT routine in the Kernal at \$FFD2. One character finished, only 24 to go! So we Increment X and Compare X with 25: If its Not Equal we will Branch to LOOP, to print the next character. If X is 25, we will continue in the program to RTS or Return from Subroutine.

One more thing: none of this will work if you have a line assembler. Only if you have an assembler that will let you type in the lot as a BASIC program before it assembles it will this program work. PAL is one such assembler. There isn't really any other way around this unless you have a monitor with a text editor built in.

Next month - some more examples of the instructions discussed so far.

Basic is Easy

by Andrew Farrell

ANY GOOD computer game has random events. Something unpredictable that happens once in a blue moon. With a special statement we can produce random numbers.

These numbers help us decide whether to execute a random event. The statement varies slightly from one computer to another. However the following examples will work on most BASIC versions derived from Microsoft BASIC 2.0.

To get a random number we use the RND statement. Try this example on your computer:-

```
PRINT RND(1)
```

You should see a value between 0 and 1. This isn't very useful. So, it's best to multiply the result by 10 to give us a

value that we can work with. Try this:-

```
PRINT 10 * RND(1)
```

This time the result will be between 0 and 9. However, we still have a string of decimal numbers that we don't need. And the value we want is between 1 and 10.

Another statement can help us out. The INT statement returns the integer part of a number. In this way we can remove unwanted digits past the decimal point. Here's an example:-

```
PRINT INT(1.675)
```

The result printed is 1. The .675 is discarded. We can use this in our random number routine. Try this:-

```
PRINT INT( 10 * RND(1)) + 1
```

We now have a value between one

and ten. If we insert this value into our times table program, the sum becomes random. This makes the questions harder to do, and far more interesting.

By Altering the value of 10 and 1, we can change the range for which the random number is calculated. Using an IF... THEN statement the random number can be tested for and depending on the result, different events take place.

Here's a brief example program. It's a decision maker for those off days when you don't really feel up to work.

Try it out! □

```
10 A=INT(10*RND(1))+1
20 IF A<5 THEN PRINT"GO TO LUNCH"
30 IF A=5 THEN PRINT"STAY AT THE OFFICE!"
40 IF A>5 THEN PRINT"GO HOME...!"
50 INPUT "ANOTHER TRY Y/N";Y$
60 IF Y$="Y" THEN RUN
70 END
```

Adventurer's Realm

by Michael Spiteri

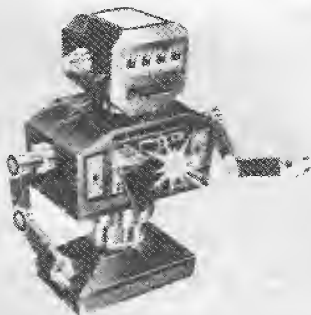
Hello!

Welcome to the Realm. Send all your mail to the following address

Adventurer's Realm
1/10 Rhoden Court
North Dandenong Vic., 3175

As soon as you read this article, an improved mail service will have been set-up. All letters with enclosed stamps will receive replies within two weeks - even if I cannot help you with your problems, I will offer some suggestions. Just try and make the letters as readable as possible!! When you send me a problem, I can help you quicker if you give the following info:

- a) the name of the game,
- b) the **EXACT** name of the location you are stuck in, and
- c) the actual problem.



Come to the Grand Opening of the first official Adventurer's Realm Help Booth

Date: Saturday 21st November, 1987

Place: Toyworld, Swanston Street, Melbourne
(Near the Bourke Street Mall)

Time: 10.00 am

**FREE ADMISSION!!
FREE GIFTS!!**

You cannot afford to miss the opening, I'll be giving away free copies of *Australian Commodore* and *Amiga Review* and *Home Computer GEM*, as well as many free HINT SHEETS, MAPS and TIPS, TIPS, TIPS!!!

Bring along all your problems and we'll see what we can do!!

The Booth will mainly consist of a Commodore 64 computer set up with a database loaded with hundreds of tips for many games. You just have to enter the name of the game and the computer will feed you tips galore!!

If you guys & gals can make full use of the Booth by being there on the day, then more Booths will be setup around Australia!!

So be there, or be square!!!

Coming soon New Help Services

Telephone Hotline

This will operate once a week for a few hours in the evening. Hopefully it will be set up in January next year. Watch this space for more info.

Realm's Hint Sheets

I'll be making up hint sheets for all of the popular adventure games (I'll print a complete list in a future issue). They'll be first made available at the official opening of the Realm Help Booth, but they will be made available by mail as of the middle of December.

★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★★



Australian Commodore Review 45

Bureaucracy

By Infocom for the C128 (80 columns) and the Amiga.

Babel Fish was something we could handle. Even a talking door was acceptable to a certain degree, but getting money out of your bank account? Hey, now come on Douglas Adams, give us a break!! We play adventure games to escape from the real world. Let's face it guys!

You're probably still recovering from the cost of purchasing the game. Yet here we have a store selling computer software, and the guy behind the counter is an ex-employee of K-Mart ("Infocom? What's an Infocom?").

Thinking of changing jobs?

Well, don't play this game.

What's even more frightening about this game is that you play yourself. When the game loads up you have to enter your name, address, age, girlfriend/boyfriend, ex-girlfriend/ex-boyfriend etc.

Things are pretty bad when you start the game. I have just moved into my new house and find the following problems:

- 1) My furniture hasn't arrived.
- 2) My girlfriend has left me.
- 3) My ex-girlfriend still abuses me.
- 4) My bank won't change my address.
- 5) The guy who bought my house sent my mail to the bank.
- 6) I am being hassled by a LLAMA FOOD salesman. (Pictures of Jeff Minter shooting down killer mutant camels spring to mind).
- 7) The house only has two rooms.

8) My home computer lives a life of its own.

9) I am flat broke.

And I have not even left the building yet.

A quick jog around the neighbourhood sees the problems pile up even higher.

- 1) The postal service is stuffed up.
- 2) I am being hassled by a nerd with weird items for sale.
- 3) The bank opens when it feels like it.
- 4) When the bank does open only about 3 tellers are open.
- 5) The Travel Agency clerk is a &%\$%&.
- 6) RAMBO lives at the end of the street.
- 7) I have a LLAMA as a neighbour.
- 8) The cafe takes about ten years just to TAKE my order.
- 9) A little man keeps cutting up my mail for stamps.
- 10) An old hag with an elephant gun lives next door.

And the game hasn't really even started yet.

There is a maze in the game (there had to be one), however the instructions suggest you do NOT try to map it out. (Is that genuine advice, or is our friend Douglas playing a little funny on us?)

Basically, the story so far is that you've just started working with a programming firm. Part of the job means flying off to Paris. All paid for!! The cheque is in the mail (ie. goodbye cheque). Although you can get the ticket from the

agency, how are you going to pay the taxi driver? If you don't pay him, he'll be too happy to bring you back home, and to never enter your neighbourhood again.

Should you make it on time to the airport you'll come across the famous unmappable maze. If you are smart enough to get on the plane you then realise that it is having problems. So, out of the door you jump, and if you land safely (in the middle of the jungle, by the way) you'll come across some very friendly natives (friendly to whom is another matter). Actually, the natives are quite hungry, and the main course has just arrived!!

So there we have it, a brief overview of a tenth of a game called *Beurocracy*. Infocom are now out to kill adventurers and the people who offer help services (like me).

Now for a critical overview of the game. The game itself is fun to play. Humour is excessive to the point where it can become a bit silly. An excellent vocabulary and an excellent parser - however, not as good as the parser we had on *Trinity*. The text descriptions are very lengthy, and also incorporate windows from time to time. The main disadvantage is that you have to have a 128 or an Amiga to play it, and that you have to have an 80 column monitor. However - you don't need to own a 1571 disk drive - a 1541 will be suitable.

I enjoyed playing the game. Although it didn't push me past 1 am, it tried hard. I still prefer *Leather Goddesses* for a good laugh, but it is good to see Infocom are coming out with original ideas, even if they have to look towards the real world and maniacs like Douglas Adams for ideas. You cannot really go past a game of such a high quality (I suppose you could go past it if the bank won't give you any money).

10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

Vocabulary	_____
Plot	_____
Playability	_____
Atmosphere	_____
Humour	_____
Overall	_____

Amiga \$80
Commodore 128 \$60
Distributed by Imagineering Software

Verdict: The radio connected to my brain says "buy it!"

PROBLEMS!!! PROBLEMS!!! PROBLEMS!!!

Unfortunately, all of your letters are lying all over the room. Some of them are mixed up with the previous month's letters, so many apologies if your problem isn't printed.

First on the list of troubled adventurers is Ben Noack of Blackwater, QLD. He has a few problems in *The Fourth Protocol*. These are:

- 1) Where and how does he find proof of Nilson's real name?
- 2) Where did the proof happen?
- 3) How was the traitor recruited?

Karla Slack supplied me with enough maps and tips to provide adventure specials for the next few months (*Hobbit* is on the list), however no-one has come to rescue as far as *Spook City* is concerned in *Never Ending Story*!! She also can't find the iron key, the well, the golden key and the knife. What use does the fragment, glass and stone have?

Lord of the Rings expert Alex Harvey is stuck in *Snowball*:

- 1) Is it possible to revive the woman? (Decent suggestions, please).
- 2) Is it possible to survive being sucked out from the tubing?
- 3) Are there any special colour codes?

Chris Nelson of Hightett, Vic, is stuck in two games. In *Mordon's Quest*, he cannot get past Tarzan and he cannot find the ruined city. In *Hampstead* he cannot find any more money. He has found the screwdriver but does not know where to use it. Can anyone help Chris?

Mario Moeller of Greenvale, Vic is stuck in *ZZZZzzz*:

"What do you do after you have dropped the bullseye on the bandit?"

Alf Glass is stuck in *Tir Na Nog*. How does he obtain the second half of the Torc?

Kevin Emery of Bundaberg, QLD is also having problems. In *The Pawn* he cannot get past the Dragon. Also, what is the Prism for? Who has the Key which was under the Pedestal. In *Kentilla*, how does he get past the ward of Disintegration?

Gabor Jakab is stuck in *Demon*

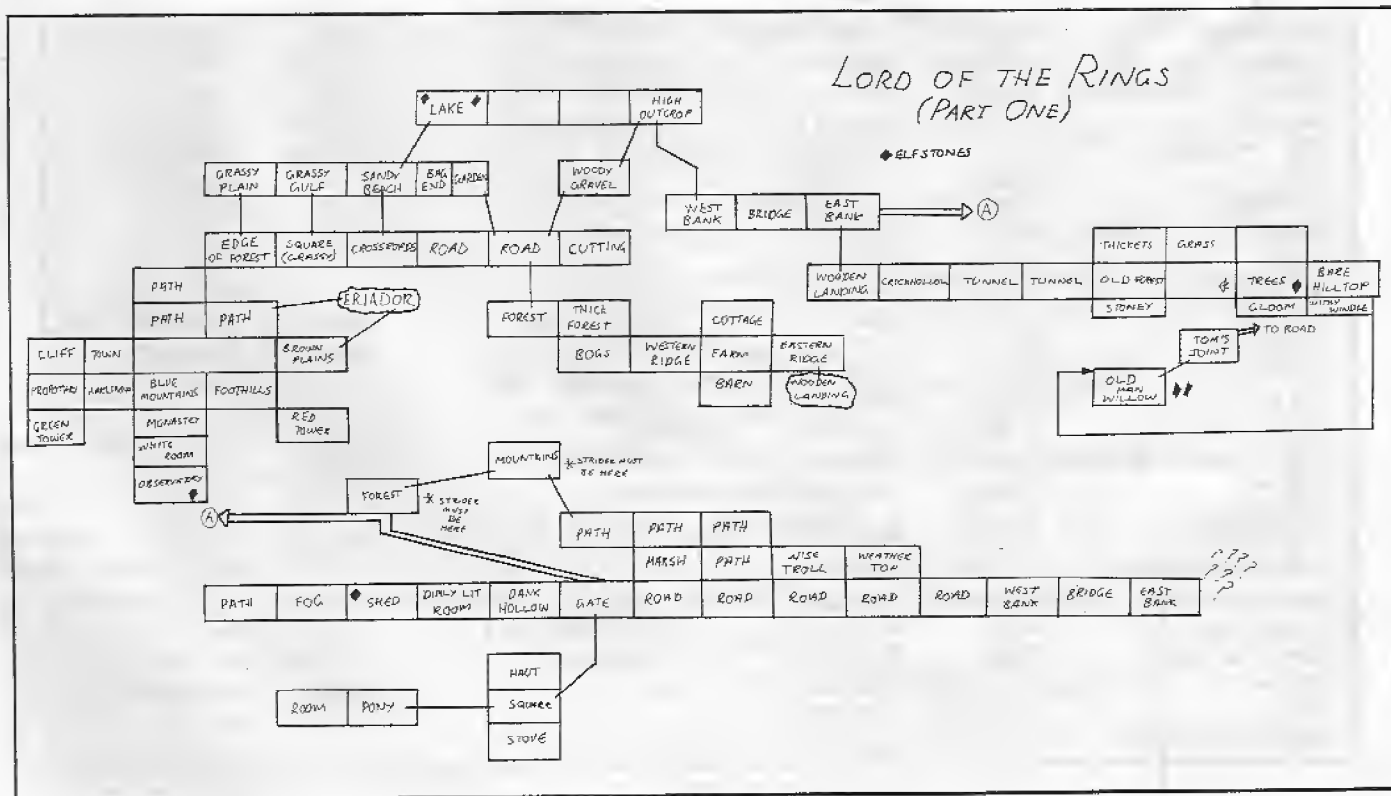


Knight. He wants to know how to get past the iron portcullis. In *Robo-City* how do you get past the drunk porter and how do you get the cartridge from the nursery.

Alf Hoop is having difficulties in *Kings Quest III*:

- 1) Where is the wizard's wand?
- 2) How do you get into the cave past the giant man-eating spider?
- 3) How do you prevent the wizard from zapping you?

Darren Younger of Richmond, NSW is stuck in *Aliens* (Talkies) He is inside a big steel door with nowhere to go!!





Chit Chat

ZORKER OF THE MONTH

Another thing I'll be introducing in a few months to the Realm is actual certificates for Zorkers of the Month. Meanwhile, Martin Trommer of Mulgrave, Vic is this month's troubled Zorker. He is also stuck in *Hampstead*. He wants to know how to open the filing cabinet. Any takers?

"I would like to agree with Wolfe the Enchanter. *Pawn* is pretty terrible. Without pretty graphics it wouldn't get 50% rating. Parser is good?? Unless you put it in the order the game wants it just doesn't want to know you. I would say *Pawn* is as good as *Lord Of The Rings*, and don't say *Lord Of The Rings* are crashing all of the time - mine does not. Problem is it is just as slow as the loading speed of the *Pawn*. Also they both have large and ignorant parsers. I may just add that *Guild of Thieves* is a little better . . . just a little."

From: Australian Adventure Masters

MS: Well! What can I say!! I quite liked *The Pawn*, but I was playing it on a C64. Maybe we've yet to see the real potential of the Amiga. Oh-oh, Wolfe is

loose again . . . on *Guild of Thieves* . . .

"The graphics do get quite nice (not spectacular, just nice) although there is no excuse for the picture in the first location that looks like the Hobbit on the Vic-20 (not that it was). On the other hand, the parser is abysmal. Ugh. When and if you play it do not (unless you don't mind being driven up the wall) try to play billiards, do anything with the watercolour painting or try to bet anything but money on the ratrace."

MS: Hmmm, so *Guild of Thieves* and *The Pawn* on the Amiga are not up to scratch. I still think they are better than certain **OTHER** games on the market though.

I think we'd better change the subject before we put Magnetic Scrolls out of

business. Mr G.T of S.A is another frustrated Adelaide adventurer. Can someone suggest to him how he could obtain software inside his state for his 128 computer?

Before I close, sorry for the lack of Hints&Tips, Adventure Funnies, and Top 10. I will give an extra dosage of these in the next issue. Meanwhile, the latest *Home Computer GEM* will have the solution to the screen door and a debate on graphic & text adventures. Look out for it!!

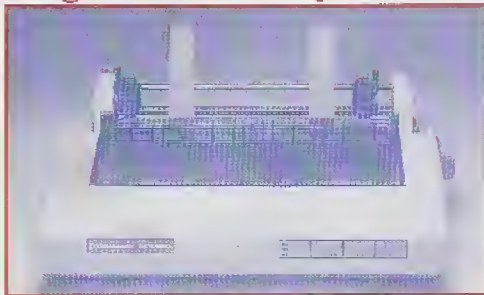
High Scores

Ace of Aces	12,600	J. STARLANDER	1942	534,000	J. STARLANDER
Alleykat	3,115,400	RUNSOFT	Paradroid	27,375	RUNSOFT
Barry McGulgan's Boxing	195,000	RUNSOFT	Parallax	58,040	RUNSOFT
Batalyx	8,685,940	RUNSOFT	Raid over Moscow	293,000	RUNSOFT
BMX Simulator	3,225	RUNSOFT	Rambo	3,948,300	RUNSOFT
Bombjack	76,830	RUNSOFT	Rockford's Riot	26,755	RUNSOFT
Cauldron II	49,000	RUNSOFT	Rock'N' Wrestle	489,300	RUNSOFT
Championship Wrestling	6,993	RUNSOFT	Short Circuit	34,095	RUNSOFT
Conan	79,920	RUNSOFT	Skate Rock	1,789,910	RUNSOFT
Crystal Castles	445,122	RUNSOFT	Schooldaze	126,190	RUNSOFT
Dan Dare	6,092	RUNSOFT	Space Harrier	589,810	RUNSOFT
Dragon's Lair	64,312	J. STARLANDER	Super Cycle	306,060	RUNSOFT
Eidolon	63,640	RUNSOFT	10th Frame - Kids	224	RUNSOFT
Fist II	253,000	RUNSOFT	Amateur	161	RUNSOFT
Floyd the Droid	11,830	RUNSOFT	Pro	160	RUNSOFT
Frankie Goes to Hollywood	78,300	RUNSOFT	Terra Cresta	85,300	RUNSOFT
Galvan	93,400	RUNSOFT	Thrust	101,060	RUNSOFT
Green Beret	883,500	J. STARLANDER	Track and Field	874,930	RUNSOFT
Hypersports	109,316	RUNSOFT	Trailblazer	370,530	RUNSOFT
International Karate	113,800	RUNSOFT	Uridium	117,130	RUNSOFT
Jeep Command	303,990	RUNSOFT	Warhawk	968,575	RUNSOFT
Knight Games	66,485	RUNSOFT	Who Dares Wins II	124,690	RUNSOFT
Law of the West	7,694	RUNSOFT	Yie Ar Kung Fu	21,678,650	RUNSOFT
Leader Board Golf Novice	23 under par	RUNSOFT	Z	128,600	RUNSOFT
Pro	11 under par	RUNSOFT			
Night Mission Pinball	7,870,000	RUNSOFT			

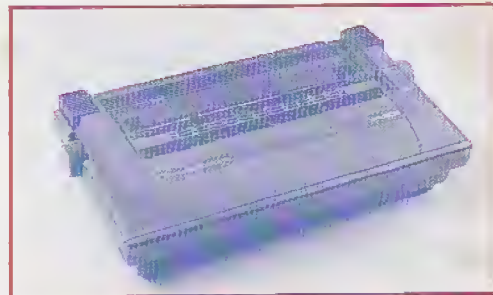
COMMODORE PRINTERS

For every Commodore computer there is a Commodore printer that is designed to cover your specific needs whether you are an owner or user of a Commodore 64 or 128, an AMIGA 500, 1000 or 2000, a PC 5, 10, 20 or 40.

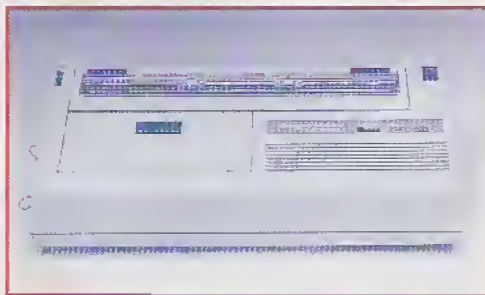
Commodore printers are designed to give you total compatibility with the rest of your computer system with built-in high performance and at the same time offering value for money.



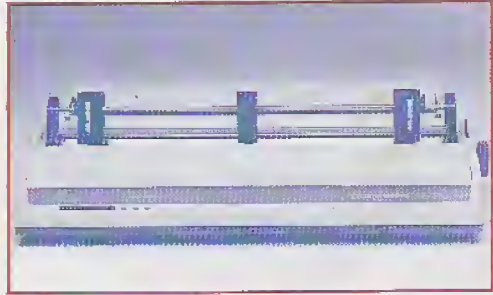
Commodore MPS 1250 Dot Matrix Printer



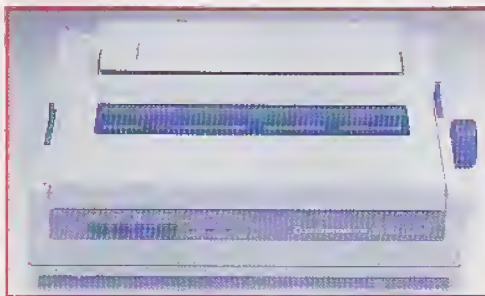
Commodore DPS 1101 Daisy Wheel



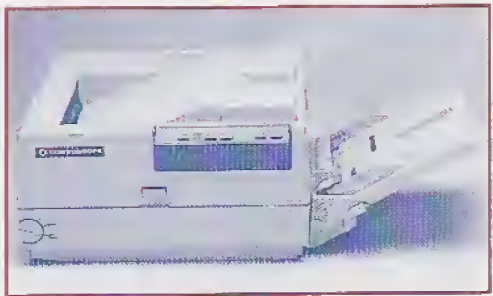
Commodore MCS 810/820 Colour Series



Commodore MPS 1280 Dot Matrix Printer



Commodore MPS 2020 Dot Matrix Printer



Commodore LP 806 Laser Printer

 **commodore**
COMPUTER

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